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THE

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AMERICAN JOURNAL OF PHARMACY.

JANUARY, 1873.

OLEATE OF MERCURY AND MORPHIA.

By Charles Rice.

This combination, suggested by Prof. John Marshall, F.R.S., and first prepared by Mr. Frank Clowes, has been in considerable demand in this city, but its preparation offers some difficulties, which do not seem to have occurred to Mr. Clowes, owing to a difference either in the character or quality of the solvent, or in the manipulation.

In using pure oleic acid as a solvent for oxide of mercury no difficulty is encountered, the oxide—both the red and the yellow varieties—being completely soluble in it, without any, or with only a very slight reduction to the metallic state.* This is not the case, however, with the commercial oleic acid, at least that which I have been able to procure in this city. It is, like the English, a residuary product in the manufacture of stearin candles, commercially termed "Red Oil," has a deep sherry-wine color and a peculiar greasy odor; exposure to moderate cold causes the separation of a considerable amount of solid acids, consisting chiefly of palmitic acid. Its sp. gr. is 0.895 at 62° F. This substance certainly dissolves the oxide of mercury, but it requires a greater degree of heat than the pure acid to effect the solution, while at the same time some of the oxide is invariably reduced to the metallic state, owing to the presence of some readily oxidisable impurities in the acid, or perhaps due to the oxidation of the acid itself. The amount of reduction is in direct proportion to the degree of temperature employed, as might have been anticipated, and was proved by a number of experiments:

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* The only objection to the employment of the pure acid is its high price.

192 grains of oxide of mercury, corresponding to 177·7 grains of metallic mercury, heated with ten times the weight of oleic acid, gave the following reductions:

At 300° F. amount of reduced Hg, . .	175 grains.
At 280° F. " " .	152 "
At 212° F. " " . .	69 "
At 200° F. " " .	35 "

Between 200° and 180° F. the amount of reduction varied between 20 and 40 grains, according to shorter or longer exposure to heat; but I have been unsuccessful in effecting a solution unaccompanied by reduction, This makes it necessary to estimate the strength of each fresh lot of solution.

The strength of the preparation as prescribed by different physicians has varied from twenty per cent. to two per cent. of oxide of mercury, with variable quantities of morphia; but of late a uniform strength of six per cent. of oxide of mercury and two per cent. of morphia is deemed sufficient for most purposes, and the following is the process which I employ for its preparation:

Expose the commercial oleic acid to a temperature of 40–50° F., and express the liquid portion, which is oleic acid, deprived of the greater portion of the accompanying solid acids. Take of oleic acid, prepared as above, 1536 grains; oxide of mercury, perfectly dry, 192 grains. Rub the oxide in a mortar with some of the oleic acid to a smooth paste; add the remainder of the acid; place the mortar on a water bath, and promote solution by frequently stirring, taking care not to allow the temperature to exceed 200° F.

As soon as all the oxide has disappeared, or rather as soon as the undissolved residue is of a pure gray color, remove the mortar from the water bath and allow it to stand for twenty-four hours. Then pour off the clear solution into a tared capsule; wash the residue thoroughly with ether and add the washing to the liquid in the capsule. Expose the latter to a very gentle heat, until all the ether has evaporated and weigh. The residue, after being properly washed and carefully dried (without heat), may be weighed as metallic mercury, which is in practice sufficiently correct.

Supposing the weight of the obtained solution to be 1698 grains and the weight of the reduced mercury to be thirty grains (assuming therefore that there has been no loss incurred during heating and during the subsequent washing of the residue, whilst in practice a small loss always occurs), we first calculate the amount of HgO_2, to which the thirty grains Hg correspond:

$$200\ Hg : 30 = 216\ HgO_2 : \times$$
$$\times = 32.4 \text{ grains.}$$

The solution, therefore, weighing 1698 grains, only contains 159.6 grains of HgO_2, or 9.4 per cent.

This solution is now to be reduced to the strength of six per cent. by the addition of more oleic acid, until it weighs 2660 grains, but we also want two per cent. of morphia. The balance wanting (2660—1698 = 962 grains) is obtained by dissolving fifty-three grains of morphia in 909 grains of oleic acid and adding it to the first obtained solution of 1698 grains, making a dark brownish red liquid, of sp. gr. 0.975 at 60° F, and containing six per cent. (159.6 grains) of HgO_2, and two per cent. (53 grains) of morphia.

It is scarcely ever used for the purpose of producing the constitutional effects of mercury, but rather as a resolvent for articular anchylosis, and it has produced excellent effects in cases of chronic articular rheumatism and in gout, by removing the stiffness and producing flexibility of the joint.

New York, Nov. 18, 1872.

Since the above was written, I have succeeded in obtaining a sample of oleic acid in this city, which dissolves the oxide completely, and, if previously separated by cooling from the solid acids, does not produce the least reduction. I also found that a much lower degree of heat is sufficient to effect solution, (160°—180° F.). A lot of oxide of mercury mixed with half its weight of carbonate was employed in a few instances, and gave even better results than the oxide alone. The resulting product, made with this kind of oleic acid, is of the consistence of thin cream and of a light brownish yellow color.

A sample of the English oleic acid, expressly imported by a friend, gave invariably a greater or lesser reduction, and so do all the other varieties which I have hitherto tried, with the exception of the last. As soon as I have traced the latter to its source I shall not fail to make it known.

New York, Dec. 15, 1872.

UNGUENTUM ZINCI OXIDI.

By Alfred H. Bolton.

In making oxide of zinc ointment by the officinal process I have experienced great difficulty in making a smooth ointment, which difficulty prompted me to resort to some other method of manipulation. The idea of using the paint-mill suggested itself to me. Now as paints are brought to a fine and smooth condition by the use of the mill, I thought why could not the oxide of zinc ointment be manipulated in the same way? In the way of experiment a paint-mill was obtained, and the result of my trial was a success; the ointment thus made is perfection in every respect. I proceeded as follows:

Placed the lard in a capsule and applied heat until fluid; then added the oxide of zinc; removed from the fire and stirred it occasionally until it acquired a semi-fluid consistence; then benzoinated it with tincture of benzoin, (made in the proportion of three troy-ounces to eight fluid-ounces of alcohol), using four fluid-drachms to every troy pound of the ointment, which preserves it from rancidity. I introduced the lard and zinc thus prepared into the mill, previously warmed, and passed it through, regulating the mill by the use of a thumb-screw attached to the same, and keeping the ingredients at the same consistence by the use of a spirit lamp placed underneath the mill. The use of a spirit lamp is superfluous in summer, and in a warm room in winter. The oxide of zinc ointment, which most pharmacists experience so much trouble with, can be made in this way perfectly smooth, and with a great deal less labor than rubbing it on the ointment slab as some do. The cost of a mill may be an objection to some, but for those who prepare large quantities of zinc ointment, I think it worth the price of a mill.

A perfect ointment is always admired by the pharmacist, the physician and the patient who uses it. This ointment is used largely by every practitioner of medicine, and deserves to be prepared in the best possible manner. In summer time the addition of two troy ounces of white wax to a troy pound of the ointment gives it a better consistence. The ointments of carbonate of zinc, carbonate of lead and others, might be prepared in a similar manner.

Philadelphia, December, 1872.

SUPPOSITORY MOULDS OF PLASTER PARIS.

By Charles E. Dwight.

Pharmacists who have had many suppositories to make with the old moulds have undoubtedly often hurt their fingers by pounding in trying to remove the suppositories. I have been for some time using a mould which parts through the centre and is made of plaster Paris, which gives so much satisfaction that I can but wish for others to try it ; it may have been used by others, but is entirely original with myself.

The expense of buying moulds of metal which part through the centre has probably been detrimental to their universal use, while they are undoubtedly superior to those old finger smashers in being easily cleaned and oiled, and also facilitating the extraction of the suppositories when cold. For the benefit of those unused to the manipulation with plaster, I will give a general plan for preparing the moulds.

Into a vessel of about six inches long by two wide and one deep, (a pasteboard box will do), pour in plaster mixed to the consistency of thick cream, until half full ; have ready six suppositories, moulded of wax, from other moulds of good shape, and while the plaster is yet soft immerse them to half their diameter, with their large end close to the edge of the box, all in a row and a uniform distance apart. When the plaster has set, gently remove the wax, and with a knife smooth off the surface and trim the edges of each mould sharp, and between each depression made by the wax suppository dig a small cavity about the size and shape of a small pea cut through the centre. Now we have half of our mould. When the face has become hard, oil or grease with linseed oil or lard, replace the wax suppositories and raise the edges of the box by wrapping heavy paper around, which will extend about another inch above the surface of the face ; mix another portion of the plaster equal to the first, and in the same way, and gently pour over the greased surface until it will be about one inch deep above the other or lower half. When hard, the two parts can be easily pulled apart, the edges trimmed off and each part boiled for about an hour in linseed oil, which will prevent the adhesion of the substance to be moulded. The plaster must be mixed thin *and well stirred* to be substantial.

By following the above plan almost any number of sizes can be made at small expense, and will, I think, be found to answer admirably. If this will in any way alleviate the frown which comes over the face of the pharmacist when he finds he has to make suppositories, the object of the writer will be fully attained.

Wheeling, W. Va., Nov. 28, 1872.

ELIXIRS.

By C. G. Polk, M. D.

Within the last six or eight years a class of pharmaceutical products termed elixirs have acquired extensive use and grown into an undeserved popularity, both with physicians and the community at large. But while purporting to be definite solutions of officinal and well esteemed remedies, they are as varying in their constituents as the proprietary bitters, and of really less value than some of them. In appearance, articles bearing the same name vary in hue from an inky blackness to the color of officinal syrup, with almost every intermediate tint. Their taste is as different as their color, but in therapeutical value they generally agree; most of them being utterly worthless.

The whole thing is radically wrong and strikes at the very foundation of rational pharmacy. In the first place the articles are so numerous that they must modify the action of the principal article to a degree that envelops the therapeutical result in mystery, and leads the physician to grope in darkness and uncertainty to an extent as great as though he were using Scheitz's or Hostetter's Bitters. Secondly, it is morally wrong to tamper with human health and rob the sick of their money without an equivalent benefit. Thirdly, they are the creations of private formulas, many of which are unknown to any one else than the manufacturer, and are practically proprietary medicines. Fourthly, they are a flag of truce to homœopathy initiatory to a surrender, without half the therapeutic merit of aconite, belladonna, pulsatilla, bryonia and veratrum, even homœopathically administered. Fifthly, they are not what they profess to be. They are base frauds. Most of the elixirs of calisaya are nothing more than a finely flavored solution of sulphate of cinchonia in proportion of about half a grain to the ounce, and do not contain the least trace of any other alkaloid of the cinchona bark. The ferrated elixirs generally contain the stated amount of the citrated iron in which their virtues mainly consists, but even these have no advantage over a syrup of the citrate of iron properly flavored, and are often not as good.

The tinctura cinchonæ comp., well prepared, with fresh orange peel and combined with compound tincture of cardamom and syrup to meet each individual case, is preferable to any elixir I have ever seen for general use. If iron and quinia are desired, the citrate of the two in combination may be given in pilular form or in a finely flavored syrup combination.

Bromide of potassium may be administered with compound tincture of cardamom, which nearly conceals its disagreeable taste, and the iodide of potassium given in syrup, compound tincture of cardamom and Curaçoa cordial can be taken without difficulty. The bitter taste of quinia may also be nicely concealed by a similar combination, so that a grain may be administered in dessert-spoonful doses. *An elixir of copaiba containing half a drachm in half an ounce of the menstruum, and so covered with aromatics as to be palatable, would be really a pharmaceutical triumph!* but one which has not yet been gained.

The evils of the elixirs are recognized, deplored and condemned by the better class of physicians and pharmacists, and yet the remedy is plain. Make them officinal, strip them of their novelty, and adopt formulas that every retail druggist can follow. Uniformity of strength, taste and appearance would be established; only one bottle of each would be required; physicians prescriptions could always (when they are ordered), be filled in letter and spirit, and all the mist and uncertainty which now envelop elixirs would be cleared away, and a class of remedies well suited for infant therapeutics would be at least definite in their constituents, convenient for physicians and druggists, easy to administer and reliable in their action. Those miserable go-betweens of homœopathy on the one hand and quack remedies on the other would either cease to exist or become patent medicines, sold by printer's ink.

It has been suggested by several pharmacists that there be a simple elixir, to be used as a menstruum, wherever it is necessary to cover the taste of disagreeable medicines. Although several objections can be urged against any formula I could offer, either of my own emanation or have seen offered by others, I doubt not that pharmaceutical skill can supply this great desideratum.

But however much I may condemn the wholesale quackery into which the elixirs have been run, I do not wish to be understood as condemning them in toto. Valerianate of ammonia is so disagreeable in odor and taste as to be neglected for these, unless they be covered, and the formula in the United States Dispensatory does this sufficiently well to render it available, and could assafœtida also be covered in taste and smell without interference with its therapeutical action, one of our best nervines and anti-spasmodics would come into general use.

I hope that this subject will receive the consideration of more able and experienced minds, and a great evil be remedied.

Philadelphia, Pa.

SOLANIA IN SOLANUM LYCOPERSICUM.

By George W. Kennedy.

Having had a strong desire to know whether or not the common tomato plant (Solanum lycopersicum) contained any solania, and never having seen any analysis of the plant, I was induced to make a series of experiments. The fruit of the plant has been examined by several pharmacists, but I believe there was no solania discovered. The amount of citric acid obtained by the experimenters has varied very considerably, thus suggesting that the fruit of different varieties has been examined, or that the fruit was collected at different periods of the year.

In giving the result of my examination I hope it may give a little more light on a plant of some importance, which I have found to contain the alkaliod solania. The process for extracting the alkaloid was similar to that of Wackenroder, except a slight change in the maceration and in using ammonia instead of hydrated lime for precipitation.

I took a quantity of the living plant, leaves and stems, and bruised them with water into a pulp in a mortar. This pulpy mass is next macerated for forty-eight hours with water enough to cover it, previously acidulated with sulphuric acid so as to have a strong acid reaction. The liquid is then expressed, and the residue treated again with sulphuric acid and water, as in the first maceration. It is now expressed as before, the two liquids are mixed, and, after standing for some days, filteredand treated with water of ammonia, sp. gr. 0.960, in excess. The precipitate that forms is separated by straining dried in heated air at 120° F, and then boiled several times with alcohol. The alcoholic solution, having been filtered while hot, will, upon cooling, deposit the solania in small feathery-like crystals, resembling quinine in appearance, having a smell like that of potatoes, and a taste rather nauseous, bitter and somewhat sweetish. With sulphuric acid, it gives a bright red color, passing into reddish brown. With iodine a characteristic yellowish brown color is produced. Besides solania, I also found in the herb some fixed oil, gum, chlorophyll and inorganic salts.

Pottsville, *Dec.* 2, 1872.

ON SOME IMPURITIES IN THE COMMERCIAL RHIZOME OF CYPRIPEDIUM.

By John M. Maisch.

Read at the Pharmaceutical Meeting, held Dec. 17th.

In a paper read before the pharmaceutical meeting, held in April last, I called attention to the fact* that two different rhizomes are met with in commerce under the name of cypripedium or ladies' slipper. Through the kindness of several readers of the American Journal of Pharmacy, I was subsequently enabled to convince myself that the two plants furnishing the commercial article are *Cypripedium pubescens*, Willd. and *C. parviflorum*, Salisb., of the rhizomes of which I gave a short description.† I then stated that the rhizomes and rootlets of these two species are the only ones constituting the commercial article, with which I have had but a limited acquaintance and experience, and the commercial specimens obtained several years ago for my cabinet prove the correctness of my observation.

Recently, however, Mr. G. L. Truckenmiller, a student of this college, directed my attention to an admixture with the rhizome of *Hydrastis canadensis*, Lin., which he had observed in commercial cypripedium, stating that an herbalist of this city had informed him that it was almost impossible to collect the latter free from the former, since the two plants grew together in the same localities, and their interwoven rootlets rendered the separation of the two rhizomes extremely difficult.

The two species of cypripedium prefer bogs and marshes, but are said to be also found in rich low woodlands, in localities in which hydrastis grows. I have observed this latter plant to be pretty frequent in some localities in the mountains of the northeastern section of Schuylkill County, Pa., but did not find any cypripedium there, and it seems to me as if hydrastis could hardly grow in swamps, where the other plants probably thrive best.

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*American Journal of Pharmacy, 1872, p. 194. †Ibid, 297.

However this may be, it is a fact that occasionally, at least, cypripedium is mixed with a considerable proportion of hydrastis, which may escape detection on superficial examination, particularly if *Cypripedium parviflorum* has been principally collected, the color of the rhizome of which is a brownish grey, resembling the yellowish grey of the corky layer on hydrastis, while the rhizome of *Cypripedium pubescens* has a blackish brown color externally. There is, however, no difficulty in distinguishing the admixture by its growth, as well as by its structure and color internally. *Cypripedium parviflorum* has the cup-shaped scars of the overground stems directly upon and above the rhizome, which is hollowed out considerably and bent zigzag up and down; hydrastis has an oblique rhizome, with very distinct nodes, and bears the stem scars upon short but distinct branches, of which only the older ones have concave or cup-shaped terminations. It breaks with a short fracture, exhibiting a resinous lustre and a reddish to brownish yellow color in which the eight to twelve almost linear light yellow ligneous rays are distinctly visible, enclosing an orange yellow pith. The rhizomes of both species of cypripedium break likewise short, parviflorum usually circular, pubescens often nearly two-edged upon the fracture, which has little lustre, is white, almost mealy in appearance, and, with the scattered bundles of ligneous tissue, very indistinct. The rootlets exhibit a similar difference, those of hydrastis being bright yellow, with a central ligneous cord of a quadrangular or triangular shape.

In another specimen of ladies' slipper root, some senega and roots of other dicotyledonous plants, not further determined, were observed.

It appears from the foregoing that the pharmacist must exercise care in selecting ladies' slipper root for medicinal use, lest it may be contaminated with other medicinal and non-medicinal roots to such an extent that garbling may be too tedious and expensive an operation.

CERESIN A SUBSTITUTE FOR WHITE WAX.

By Joseph P. Remington.

Read at Pharmaceutical Meeting of Philadelphia College of Pharmacy.

A sample of this article was put into the writer's hands for the purpose of examination. It had been sent to a large manufacturing house in Philadelphia from an agent in Germany, with the intention of introducing it here as a substitute for beeswax.

In appearance it is very similar to white wax, in a flat cake, white, shining, nearly inodorous, breaking shortly with a fracture like wax. Its specific gravity is .850, and its fusing point 135° F., volatilizable by heat, and the sublimed ceresin is reddened by the application of sulphuric acid; it dissolves slowly in ether, phenol, turpentine, petroleum-benzin, chloroform, carbon bisulphide, and freely in these solvents, if heated, depositing in gelatinous white flocks on cooling, nearly insoluble in alcohol and methylic alcohol. It is indifferent to the strong mineral acids, with the exception of hot sulphuric acid, which acts on it easily, forming a ruby red liquid, which rapidly passes to black with the evolution of sulphurous acid. This is due to the deoxidation of the sulphuric acid; its action is first to carbonize the ceresin, and the carbon then abstracts oxygen from the sulphuric acid, and sulphurous acid is liberated; neither potassa nor soda would saponify it. Prof. John M. Maisch kindly informed the writer of an account in Hager's Pharmaceutische Centralhalle, (Oct. 10th), of some of the properties of this substance. The points are as follows:

Ceresin—fusing point between 62° and 63° R. Acids and alkalies do not attack it either cold or hot.

At high temperature it volatilizes and distils without change.

Ceresin price in Vienna, 100 guilders.

Paraffin price in Vienna, 70 guilders.

Paraffin slowly cooled becomes opaque, and resembles wax more than if cooled rapidly.

Probably obtained from fossil wax (Erdwachs) of Gallicia, which yields such a paraffin.

An imitation of yellow beeswax is in German commerce. It consists of paraffin, colored yellow by curcuma.

The Journal of Applied Science contains the following:

Ceresin is a new product, destined to play an important part as a lighting material. It is obtained from ozokerit or fossil wax by the following process. Ozokerit is heated up to a temperature ranging from 250° to 300° C., in order to separate by volatilization and subquent condensation the liquid oils. The mass being cooled down to 60°, it is treated with from 10 to 26 per cent of Nordhausen sulphuric acid. The temperature is then raised to 100°, and care is taken to maintain this heat until the precipitation of the carbon takes place and forms a viscous residue, which is carefully separated from the supernatant oils, heated and then treated with about 10 per cent of diluted sulphuric acid and afterwards neutralized by aid of an alkali. The mass is then heated to about 180°, poured upon plates and pressed through linen cloths in order to separate the greasy matters; this residue of wax can then be melted and filtered. The product is ceresin, which is employed in the manufacture of candles.

To summarize the results obtained by the writer, ceresin is undoubtedly one of the paraffins, although it differs from common paraffin in several respects. It is not unctuous to the touch, as is paraffin, is not as translucent and does not break with the characteristic fracture of paraffin, and has a higher fusing point, although the fusing point of paraffin is sometimes lower than 135° F. It seems to hold a middle place between paraffin and wax. It would serve as a substitute for wax in pharmacy in a number of cases. A very white and firm simple cerate was made with it, using it in the same proportion as wax—that is two parts lard, one part ceresin.

PERMANGANATE OF POTASSIUM—A MODIFIED FORM OF CRYSTAL.

By Joseph P. Remington.

Read before Pharmaceutical Meeting of Philadelphia College of Pharmacy.

A sample of permanganate of potassium was recently examined in which the prismatic character of the salt was almost entirely wanting. It was imported from Germany and offered in New York market. The crystals, when thrown into a heap, resembled a miniature pile of anthracite; the pyramidal summits were present on some of them, but in a number of cases this characteristic was absent. Tested volumetrically, a given portion of the solution was exactly decolorized by the requisite quantity of solution of ferrous sulphate, thus indicating a pure salt. The only explanation that is suggested to the writer is that some foreign salts were presented in the solution from which it was crystallized, which interfered with their proper development.

On one occasion, in obtaining crystals from a large quantity of solution, 50 or 60 gallons, a similar effect was noticed, there being present in the solution, besides pure permanganate, chloride and sulphate of potassium. The crystals, on examination, proved to be the double salt of perchlorate and permanganate.

ADULTERATED HEAVY MAGNESIA.

By Richard V. Mattison.

A short time ago I had occasion to purchase a quantity of heavy magnesia, and the order was given one of our large wholesale houses to fill. The quantity sent me presented a fine appearance, and a portion of it was put up in ʒi and ʒii packages for dispensing, some of which was returned with the remark, "There must be some mistake here; this does not taste like magnesia!" Upon examining a portion of the package presented I was struck with the peculiar taste, which was strongly saline and cooling, bearing some resemblance to that of tartaric acid when in combination with an alkaline base. Upon examining the remainder, which had not been placed in packages, it was found to be of the same character.

The physical properties of the powder, differing so widely from pure magnesia, suggested the propriety of a chemical investigation, and it was analyzed at the College laboratory, under the supervision of Prof. Maisch. The powder, submitted to the action of boiling water and the mixture filtered, gave a filtrate of a strong alkaline reaction with turmeric paper, and yielding no precipitate upon cooling; after the addition of ammonium chloride and oxalate, a slight turbidity was produced, indicating the presence of a little calcium. The magnesium salt dissolved was thrown out of the filtrate by the addition of solutions of ammonium hydrate and ammonium orthophosphate and boiling. The abundant precipitate produced by these reagents gave evidence that this almost insoluble alkaline earth had entered very largely into solution. This precipitate was removed by filtration, evaporated and calcined in a porcelain crucible with a few drops of nitric acid added occasionally, until reduced to whiteness, and all traces of ammonium had disappeared. The portion remaining in the crucible was dissolved in water acidulated with hydrochloric acid, and the solution concentrated, when upon the addition of platinic chloride a precipitate of the double chloride of platinum and potassium was produced.

The mixed precipitate and supernatant liquid was evaporated to dryness, and yielded to a small portion of water a filtrate which colored the flame of a Bunsen burner a bright yellow, and gave a crystalline precipitate of sodium antimoniate, when a solution of potassium antimoniate was added.

As the original powder charred when placed upon platinum foil and heated, the presence of one of the organic acids was indicated, and another portion of the powder was boiled in water, filtered, and the magnesium salt separated as before. The filtrate from this produced a precipitate with barium chloride, partly soluble in nitric acid, showing the presence of a small quantity of sulphuric acid, probably existing in combination as sodium sulphate. With another portion of this filtrate argentic nitrate produced a white precipitate, soluble in solution of ammonium hydrate, and in nitric acid. This precipitate, upon being heated to 212° F., instantly blackened from the reduction of the silver.

To another portion of the filtrate solution of calcium hydrate was added, and a dense white precipitate was the result. This precipitate was soluble in solution of ammonium chloride, tartaric acid, and also in solution of potassium hydrate, from which, upon boiling, it was reprecipitated. This corroborative testimony proved the presence of tartaric acid, which existed, combined with potassium and sodium, as Rochelle salt in the powder, mixed with magnesia and imported for our market and sold under the name of *Heavy Magnesia.*

Philadelphia, Dec. 23, 1872.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Nitrate of silver and crystallized sugar, when acting upon each other, (at 130° C.), do not yield optically neutral sugar, as stated by Maumené. N. Borodylin obtained instead invert sugar and oxalate and cyanide of silver.—*Pharm. Zeitsch. f. Russl.* 1872, *No.* 17.

Analysis of Barberries.—Dr. Graeger found in 100 parts of the recently collected ripe fruit of *Berberis vulgaris*, Lin., exclusive of the stalks, 15.58 integuments and seeds, 17.20 soluble solid constituents and 67.22 water. The constituents of the juice, calculated for 100 parts of fresh berries, are 5.92 malic acid, 4.67 sugar, 6.61 gum, 67.16 water and 0.06 salts of potassium and calcium. The integuments and seeds yielded 2.20 ashes, mainly consisting of phosphate of calcium. The berries are well adapted for the preparation of malate of calcium.—*N. Jahrb. f. Pharm.*, 1872, *Oct.* 201–203.

Hyoscyamia, according to Dr. G. Merck, is generally obtained in the form of a soft amorphous mass. If this mass is carefully distilled in a current of hydrogen, a colorless distillate is obtained, which is probably the pure alkaloid. It is a somewhat oily liquid, resembling conia in odor and appearance, readily soluble in alcohol and ether, also in water, partly soluble in benzin and chloroform; in contact with the air it rapidly becomes yellow and brown, acquires a thicker consistence and an intense disagreeable odor, and is then but partially soluble in ether. It has a strong alkaline reaction and neutralizes the acids completely. The salts are crystallizable with difficulty.—*Ibid*, 203, 204.

Depilatory.—Prof. Bœttger recommends the following as safe: 1 part of crystallized sulphhydrate of sodium is rubbed to a very fine powder, and mixed with three parts of prepared chalk. The mixture keeps well in closed vials. Mixed with water and applied to the skin, the hair becomes soft in two or three minutes and is readily removed by water. A longer application is apt to corrode the skin.—*Ibid.*, p. 230.

[This appears to be an improvement on Boudet's depilatory, which consists of 3 parts of crystallized sulphhydrate of sodium, 10 parts of quick-lime and 10 p. of starch.—Editor.]

An unhurtful hair-dye is suggested by Dr. Hager, as follows: 10 parts of subnitrate of bismuth and 150 p. of glycerin are mixed in a glass vessel and heated in a water-bath; solution of potassa is then added in small portions and with continued agitation, until a clear solution has been obtained, to which a concentrated solution of citric acid is added until merely a slight alkaline reaction is observed. Enough orange-flower water is added to make the whole liquid weigh 300 parts; the addition of a small quantity of solution of an anilin color completes the preparation.—*Pharm. Centralhalle*, 1872, *No.* 46.

Peschier's Tapeworm Pills are made, according to Hager, of 1·6 grm. (25 grs.) each of oleo-resin and powdered male fern, divided into 20 pills, which are rolled in lycopodium, and taken 10 in the evening and the remaining 10 next morning. An hour after the last dose a clyster is given, consisting of 2 grm. oleo-resin of male fern, 15 grm. gum arabic, and sufficient water.—*Ibid.*, *No.* 47.

Death from the Inhalation of the Vapors of Phosphorus Paste.—An apothecary had poisoned several bushels of wheat with strychnia, which was to be used for the destruction of field-mice, but previously to be covered with phosphorus paste. Instead of performing the last operation in the open air, upon small quantities, the deceased worked upon the wheat, in two portions, in his cellar, and continued at this labor notwithstanding he fainted several times. The inhalation of the gases evolved prostrated him completely, and he died within a week. —*Pharm. Zeitung*, *No.* 96.

Potassa Soap for Soap Liniment and Liquid Opodeldoc is recommended by G. H. Barckhausen, on account of its perfect solubility in alcohol even at the freezing temperature. The commercial soft soap, however, is unfit for this purpose, because it contains variable quantities of free alkali, is often adulterated with starch, &c., and varies considerably in color. The author suggests the following manipulation: 100 parts of rape-seed oil are mixed, near the temperature of boiling water, with 15 parts of potassa, previously dissolved in some alcohol; the remaining alcohol is then added, and the digestion continued until the oil is dissolved, when the water is added, whereby the complete saponification is facilitated. This gives a slight excess of alkali, which, however, is necessary to avoid retaining unsaponified oil in the solution. Alcohol decomposes soaps when dissolving them, setting alkali free; hence less alkali is requisite if the soap is made in alcohol. Based on the amount of fatty acids, the author finds that 100 parts of rape-seed oil are equal to 300 p. potassa soap, or 150 p. Castile soap.—*Archiv d. Pharm.*, 1872, *Oct.*, 289—299.

Decomposition of Dilute Hydrocyanic Acid.—Pettit states that aqueous hydrocyanic acid containing 10 per ct. of acid, decomposes very rapidly, while if dissolved in 1000 parts of water (= $\frac{1}{10}$ per ct. acid), it will keep for six months almost without alteration. If a 10 per ct. acid, which has already commenced to decompose, is diluted to $\frac{1}{10}$ per ct., the alteration does not progress. Ammonia does not appear to induce this decomposition. Gautier, however, infers from his experiments with the concentrated acid that ammonia hastens the decomposition.—*Chem. Cent. Blatt*, 1872, *No.* 42, from *Bull. Soc. Chim.*

The action of iodoform and phosphorus produces, according to Gautier, an orange-yellow body, which is insoluble in most solvents, and yields with boiling water another lighter colored compound and the products of decomposition of tri-iodide of phosphorus. The new body is probably the phosphorus compound corresponding to cyanic acid.

Phosphorus does not re-act upon chloroform at a temperature of 200° C.—*Ibid.*

Action of Oxygen upon Aqueous Infusions.—Laborde filled a glass globe, the neck of which was drawn out to a fine point, with infusions and decoctions of vegetables, heated to boiling, and when the air was expelled closed the opening hermetically. The liquids remained unaltered while portions of the same liquids rapidly spoiled by mould when left in contact with the air. The generation of oxygen within the globe by means of electricity, did not cause any alteration, but mould appeared in a few days when contact with the atmosphere was re-established.—*Journ. de Pharm. et de Chim.*, 1872, *Aug.*, 113.

Value of Apomorphia in Cases of Poisoning.—Dr. Loeb relates a case of poisoning of a young man who had swallowed a portion of a solution of 3 oz. oil of bitter almonds in 1½ pint of strong alcohol. Half an hour afterwards the patient was found with a livid countenance, rational, but very weak, vision impaired, pulse 96, heat of body not altered. A subcutaneous injection of 0·008 grm. ($\frac{1}{8}$ gr.), produced emesis in 8 minutes, which was repeated in 5 minutes. The young man felt better at once, and was well the next morning, with pulse 72.—*Apoth. Zeitung*, 1872, *No.*45.

ON THE DETERMINATION OF THE TRUE ZERO OF THERMOMETERS.

By Ch. Tellier.

It is generally admitted that the 0° of the Centigrade and Réaumur thermometers varies after a longer or shorter time, and the delicate and sensitive thermometers therefore become altered as regards the indication of the 0° when placed in melting ice or snow. According to the observations on the supersaturation of water with cold (see *Chemical News*, vol. xxvi, p. 107) thermometers are much less variable than is generally supposed, and the cause of the differences which are observed is probably due to an error made in the determination of the 0°. It may be readily conceived that unless special precautions are taken at the time of the gradation of the thermometer, the water in which it is plunged, and which is supposed to be precisely at the temperature of melting ice, may in reality be slightly above that temperature; this is the case if the walls of the vessel containing the water and ice admit more heat to the water than the melting ice can overpower: this is natural; ice does not melt instantaneously, but only in the ratio of its surface, and in proportion to the difference of the temperature of the water in which it floats, and its own temperature; and it is consequently quite possible that the water which contains the ice is not at a temperature of 0°. The colder the water the more slowly will equilibrium of temperature be established between the two bodies, and in the same ratio will the chances of error be greater. The error of indications of the thermometers brought on by time either depends upon a modification in the glass, as usually admitted, or it is due to the result of an erroneous estimation of the 0°. In the first case the alteration would rather tend to *plus* in one case and *minus* in the other, and there is no plausible reason why it should be otherwise; in the second case (erroneous estimation of the 0°) the error should be always *plus*, because the water must be above 0°. My experiments have confirmed these views. I have taken seven thermometers with the gradations engraved on the stem and made by one of the best makers; only one of these instruments has been found to indicate 0° correctly, all the others indicated a difference—

2	indicated	+ 0·1
1	"	+ 0·2
2	"	+ 0·3
1	"	+ 0·4

Not one of these thermometers indicated below 0°.

The determination of the 0° by placing the thermometer in melting ice is therefore not an absolutely certain method of operating. In order to find the true 0° another plan must be followed, which is that found and described by me, and called *terminus of congelation.* The operation is carried on as follows:—A glass vessel is placed in a refrigerating mixture, and the temperature of the water contained in the vessel is thereby readily lowered to — 2 or to — 3: this having been done, the vessel is removed from the mixture, and the thermometers to be graduated are placed in it, with a small piece of ice; hereby the water becomes suddenly frozen, while at the same time the temperature rises to 0°. When one has no ice at hand, and in order not to complicate the operation, the temperature of the water should be brought down to — 4°, when, by giving a gentle tap with a glass rod to the bottom of the vessel, the phenomenon of congelation of the water will be observed, the temperature rising to the true 0° absolutely. I draw from the foregoing the two following conclusions:—

1. That the expression of melting ice does not exactly indicate the true 0°, and that therefore it ought not to be the basis of the determination of that point.

2. That by applying the term of *terminus* of congelation it is quite possible to estimate with certainty the exact point which separates liquid water from ice, and that point is the true 0°, which should be the starting point of the graduation of the thermometer scale.—*Revue Hebdomadaire de Chimie.—Chem. News*, 1872, *Nov.* 22.

TINCTURE AND SYRUP OF ORANGE-PEEL, AND TINCTURE OF QUININE.

By Charles Symes, Ph. D.

The preparation of tincture of orange from fresh peel is a matter which has engaged my attention more or less during the last twelve years, and some few remarks on the observations I have made from time to time might not be out of place, especially as very vague conclusions appear to have been arrived at on this subject at the last Pharmaceutical meeting, after a description of some (to my mind) unsatisfactory experiments by the President.

On March 8th, 1868, I brought the subject before the members of the Liverpool .Chemists' Association, exhibiting a sample of the preparation in question, and advocating its general adoption (*vide Pharmaceutical Journal*, 2d series, vol. IX, p. 522), but it received comparatively little attention, and it was overruled by Mr. Shaw (in the chair) that the inconvenience of being unable to obtain fresh peel at all seasons of the year was sufficient to justify the continuance of the process according to the B. P.

Tincture of orange is essentially a flavoring agent, possessing slight stomachic properties; nevertheless, it is the most important of its class, largely prescribed, and therefore meriting attention. In drying the peel, however carefully this is performed, a large percentage of the aroma is lost, which, if retained, makes a tincture of *unquestionably superior flavor ;* such being the case, any difficulty in procuring the fruit at some seasons is quite secondary. How easy would it not be to make many of the tedious pharmacopœia preparations if we could rest satisfied with inferior results? When this tincture has been kept twelve months the flavor is not quite so fine as when freshly prepared, but even then its superiority to tincture from the dry peel is evident.

Six ounces of peel, cut thinly from the fruit, weigh two ounces when dry; it will be evident then that this quantity will be required to make one pint of tincture, and that four ounces of water must be omitted in making the proof spirit. Although rectified spirit might be the best solvent of the volatile oil, etc., in the peel, there is an objection to its use, as it tends to *harden* the peel, rendering it more crisp and less permeable. In the winter I usually make sufficient to carry me safely through the summer, when the fruit is difficult to procure, but taking the quantity of the pharmacopœia for example I proceed thus:—Six ounces of thin fresh peel, cut small, are macerated 48 hours with four ounces distilled water; 12 ounces of rectified spirit are then added, and the maceration continued with occasional agitation for one month; filtered, pressed, and the product made to measure one pint with proof spirit. Set aside in a moderately cool place for use.

Tincture of Quinine, prepared from the foregoing tincture in the summer, deposits in the winter—so it frequently does when prepared with the B. P. tincture—presuming, of course, that pure quinine be used (not the unbleached, which frequently, if not always, contains cinchonine). Now, to prepare, say two pints, tincture suitable for comp. tincture of quinine, I proceed thus:—Take six ounces fresh peel, two ounces dry peel (in fine shreds, known as machine cuttings), add four ounces water, and after forty-eight hours, 32 ounces *rectified spirit ;* allow to stand as before, but, after pressing, make up the deficiency with *rectified* instead of proof spirit. Thus a tincture is obtained of fine flavor, and capable of retaining the quinine in solution. Here it might be objected that I am introducing a third strength of spirit, and with its complication. This is to some extent true, and I should be the last to do so if no practical results were to be gained, but it must have occurred to many persons as being somewhat inconsistent that in the B. P. we should have but two strengths of spirit (and these more or less arbitrary) as being best capable of dissolving and preserving the active principles of the whole materia medica.

Syrup of Orange Peel.—Most of what I have written with regard to the tincture from fresh peel will apply to the syrup made from that tincture, but with this exception, it does not lose anything of its fine aroma by age. Sugar appears to possess a preservative influence, and this suggests an experiment worth trying when Seville oranges are again in season, viz.:—Take the six ounces of fresh peel and beat well with an ounce or two of sugar, before adding the water and spirit for producing the tincture; will it retain its fresh flavor quite unchanged?—*Pharm. Journ. and Trans., Nov.* 16, 1872.

THE PRESENCE OF SILVER IN COMMERCIAL SUBNITRATE OF BISMUTH.

By Charles Ekin, F. C. S.

In the June number, 1868, of the *Pharmaceutical Journal*, will be found a short paper of mine on "Commercial Bismuth," in which I pointed out that, whilst the tests given in the Pharmacopœia for bismuthum purificatum excluded copper, and the process for purifying it eliminated arsenic and antimony, no notice was taken of the probable presence of silver, notwithstanding that it was known that commercial bismuth frequently contained silver.*

My attention was again called to the matter by receiving the other day from a well-known and highly respectable firm of manufacturing chemists a sample of subnitrate of bismuth, containing so much silver that when exposed to the light it became of a deep bluish-black tint. I obtained a sample from another firm of at least equal standing as manufacturing chemists, and to my surprise I found that even this too contained a very appreciable amount of silver. Upon this I decided to investigate the matter further, and obtained samples from four of the first dispensing houses in the country, for examination.

Each sample was dissolved in nitric acid, diluted with an equal volume of water, the insoluble residue, if any, was collected on a filter, well washed first with diluted nitric acid, and afterwards with water, and then treated on the filter with ammonia. The presence of silver was considered sufficiently proved by the residue on the filter being blackened by exposure to light, by its being soluble in ammonia, and giving in its ammoniacal solution a light lemon colored precipitate, with iodide of potassium. The chloride was precipitated from the nitric acid solution and weighed as chloride of silver in the usual way. In no case did diluted sulphuric acid give any precipitate, thus showing the absence of lead.

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*See American Journal of Pharmacy, 1871, p. 292.

Sample 1. The one first mentioned above. A very short exposure to light blackened it. Was not examined further, as the manufacturers acknowledged the contamination of silver.

2. The second sample mentioned above contained much less silver than sample 1, but sufficient to give a distinct bluish tint when exposed to light for two or three days.

3. Not a subnitrate at all, but a basic subchloride, containing chlorine equal to 90 per cent. of BiOCl; not completely soluble in nitric acid, and contained silver.

4. Contained silver and 3·9 per cent. of subchloride.
5. Contained traces of subchloride, but no silver.
6. Traces both of subchloride and silver.
7. Neither silver nor subchloride.
8. Contained silver and 4·9 per cent. subchloride.
9. Neither silver nor subchloride.
10. Silver and traces of subchloride.
11. Neither silver nor subchloride.
12. No silver, but 6·5 per cent. subchloride.
13. No silver; traces of subchloride.
14. No silver; about one per cent. subchloride.
15. Neither silver nor subchloride.

The samples showed great diversity in density and appearance. Sample No. 1 was a damp powder, having a strongly acid smell and reaction. I am assured by manufacturers that subnitrate prepared strictly according to the Pharmacopœia, after having been kept for about two months, developes so much acid as actually to effervesce with carbonates. After rewashing, however, it becomes more basic and more stable.

In sample No. 3, obtained from a London dispensing house, the substitution by the manufacturer of a subchloride for a subnitrate is of course unpardonable. I have understood that, owing to its being prepared at a less cost, there is a great deal of subchloride sold as subnitrate, but this is the first sample I have ever met with.

The subchloride in the other samples, although in one instance it amounts to as much as 6·5 per cent., I consider to be rather the work of careless manufacture than an adulteration. It would appear that after the bismuth is dissolved, the silver, which, as we have seen, must be frequently present, is precipitated as chloride by hydrochloric acid, and removed by decantation. If this is done carefully, there could be no objection to such a process, but that it is not generally done carefully is sufficiently proved by the presence of varying quantities of subchloride, and in seven samples out of fifteen, of chloride of silver. Samples 7, 9 and 11, which are very pure, I find, on inquiry, were manufactured by Howards & Sons, Stratford.—*Pharm. Journ. and Trans.*, *Nov.*, 16, 1872.

NEW METHOD OF PREPARING CHROMIC ACID.*

By E. Duvillier.

The chromate of barium is decomposed at a boiling heat, with an excess of nitric acid. The almost insoluble nitrate of barium is precipitated in a crystalline form, and chromic acid remains in solution. The latter is purified by successive evaporations, and by finally treating with a suitable quantity of dilute sulphuric acid.

The process is as follows: Boil for ten minutes 100 parts chromate of barium, 100 parts water, 140 parts nitric acid, sp. gr. 40° B.

The water should first be poured on the chromate of barium to form a kind of magma, and the nitric acid added afterward. This is important, because, if the opposite order is followed, the result is not as good, and the nitrate of barium formed incloses in it chromate of barium.

To the red liquor add 200 parts of water, and allow it to boil for ten minutes. The nitrate of barium settles rapidly when left quiet.

The supernatant liquid, when cold, contains 4 parts of nitrate of barium to 100 of soluble substances. This is decanted and evaporated to nearly the volume of the acid used. During this operation the greater part of the dissolved nitrate of barium is precipitated, and when the liquid cools chromic acid is obtained, containing only 0·5 per cent. of nitrate of barium.

The excess of nitric acid is expelled by evaporating nearly to dryness, adding water, and repeating the operation several times, until a stopper with ammonia no longer gives white fumes. The sufficiently concentrated chromic acid crystallizes in black warts, exactly similar to the plates obtained in a vacuum by Bolley's method. In this way chromic acid, sufficiently pure for most uses, can be prepared in a few hours.

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* Translated for the Journal of Applied Chemistry from Dingler's Polytechnisches Journal.

To obtain a perfectly pure product it is only necessary to precipitate the remainder of the barium by adding a sufficient quantity of sulphuric acid to the boiling solution.

This method possesses the advantage over all those previously described of quickly furnishing all the chromic acid contained in the chromate of barium used, and also that the acid is absolutely pure. It can also be employed on a large scale by observing the above-given proportions. The excess of acid would then be collected in a suitable distilling apparatus so as to use it for another operation. The nitrate of barium could be used in making the chromate of barium, so that no loss would be sustained.

CHLOROFORM AS SOLVENT FOR AND MEANS OF SEPARATING POISONOUS VEGETABLE SUBSTANCES IN FORENSIC INVESTIGATIONS.

I. Nowak has instituted a series of experiments which prove that chloroform quickly and perfectly extracts the following long list of vegetable substances from alkaline solutions, viz.: Strychnia, quinia, quinidia, chinchonia, caffeina, theobromina, emetina, atropia, hyoscyamia, aconitina, veratrina, physostigmia, narcotina, codeina, thebaina, nicotina and conia. It dissolves brucia, colchicia and papaverina more slowly. Sabadillia is only taken up by it when warm, while narceina is taken up from alkaline solutions in small quantities only. Picrotoxin is acted upon by chloroform more readily from acid than alkaline solutions. Morphia and solania do not dissolve in chloroform, either from acid or alkaline solutions.

Further experiments also show that all those substances which are taken up by chloroform from aqueous alkaline solutions are again given up by it on shaking repeatedly with acidulated water, while fatty and other foreign substances mixed with them remain in the chloroform. A systematic course of search for poisonous vegetable substances, founded upon the above facts, was instituted, and its practicability tested by actual experiments as follows: A weighed quantity of different poisons was mixed with pieces of flesh selected for the purpose, and then tested for. The results obtained showed that in many cases the whole quantity of the poison mixed with the flesh was recovered, and in most cases the greater part was found. The results gave general satisfaction, especially on account of the great purity of the alkaloids obtained from the chloroform, so that the reactions for identifying them could be made at once.—*Journ. App. Chem., Dec.*, 1872.

VANILLIC ACID.*

By P. Carles.

After being preserved for a certain time vanilla generally becomes covered with crystalline needles. As this crystallization is considered to be a mark of good quality, sometimes it is sought to impart it to inferior vanilla, and this is done by simply putting some of the crystals already formed into the case containing it. The chemical composition of this efflorescence does not, however, appear to be perfectly understood.

Formerly, and the error has been repeated in recent works, Vogel asserted that it consisted of benzoic or cinnamic acid; Wittstein thought it to be coumarin. M. Vée,† comparing the melting-points of these various substances, detected the error and showed that it was a peculiar acid. About the same time, M. Gobley‡ investigated the chemical characters of these crystals, compared them with coumarin, and proposed for them the name vanillin, or aromatic principle of vanilla. Later, in Germany, Stokkebye§ took up the subject. He fixed the melting-point at 82° C., instead of 76° C. (Gobley), or 78° C. (Vée), and in virtue of its acid properties called it vanillic acid. Finally, while Gobley had attributed to it the formula $C_{20}H_6O_4$, Stokkebye represented it by $C_{34}H_{22}O_{20}$.|| These differences in the formulæ and melting-points attributed to it seemed to show that even if their authors examined the same crystals, they were at least not of equal purity. M. Carles was therefore induced to undertake the present investigation.

Instead of extracting the vanillic acid directly from the vanilla, M.

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* Abstract of paper in L'Union Pharmaceutique, xiii, 294.

† Journ. de Pharm. et de Chimie, [3] xxxiv, 412.

‡ Ibid., 404.

§ Zeitschrift für Chemie, 1865, p. 467.

|| These formulæ are according to the old notation.

Carles preferred to purify the deposit found at the bottom of the cases in which vanilla had been kept. From a mixture of specimens from various sources he made a concentrated aqueous solution by boiling, and after the addition of animal charcoal, passed it through a moistened filter. Upon cooling, the acid was deposited, and it was submitted to two or three successive crystallizations. If cooled slowly the crystals appeared as colorless transparent prisms, sometimes more than two centimetres long. When fresh and very pure their odor was very feeble, but was increased by heat, and their taste was piquant. Vanillic acid, so obtained, melts at between 80° C. and 81° C. Heated on platinum foil, it volatilizes without decomposition, but it distils with difficulty in a retort at about 280° C. It is very soluble in cold alcohol, ether, chloroform, sulphide of carbon, and the fixed and volatile oils. Water at 15° C. dissolves 1·2 per cent., but in boiling water it is very soluble. It decomposes the bicarbonates with effervescence; and saturates perfectly the alkaline bases in the cold, and the earth bases with heat. Pure concentrated sulphuric acid turns it yellow in the cold, but if the acid contain traces of nitric acid a scarlet color is produced, and the same result follows with pure sulphuric acid and resinous crystals. Dilute nitric acid attacks it feebly, but concentrated quickly converts it into oxalic acid. Chlorine, bromine, and iodine yield products of substitution. It is precipitated by acids from concentrated aqueous or alcoholic alkaline solutions with little evident modification, even after being exposed for several hours to a temperature of 100° C. It colors the persalts of iron blue, reduces nitrate of silver and is precipitated plentifully by the acetates of lead. Its formula is given by M. Carles as $C_{16}H_8O_6$ ($C_8H_8O_3$).

	Found.	Calculated.	
	I.	II.	
Carbon, . .	63·14	63·13	63·15
Hydrogen, . .	5·55	5·69	5·26

The author describes the following compounds of vanillic acid obtained by him:

Vanillate of Lead ($C_{16}H_7PbO_6$).—Tufts of white crystals radiating from a common centre, deposited upon cooling after mixing a hot aqueous solution of vanillic acid and a solution of neutral acetate of lead.

Vanillate of Magnesia ($C_{16}H_7MgO_6$).—Colorless, inodorous crystals slightly soluble in cold water, insoluble in alcohol and ether. Obtained easily by double decomposition between fresh vanillate of baryta and sulphate of magnesia, or by saturating a boiling solution of vanillic acid with magnesia hydrate or carbonate, and allowing to cool slowly.

Vanillate of Zinc ($C_{16}H_7ZnO_6$).—Deposited in white crystals upon cooling a hot solution of vanillic acid, saturated by oxide or carbonate of zinc. Slightly soluble in boiling water.

Iodine Compounds ($C_{16}H_7IO_6$ and $C_{16}H_6I_2O_6$).—The first consisting of white pearly crystals of faint odor, slightly soluble in alcohol and ether, melting at 74° and subliming without decomposition, was deposited after some hours from a mixture of 2 grams of vanillic acid dissolved in 50 grams of water and 1·5 gram of iodine dissolved in 50 grams of alcohol. The second was obtained when iodine was used in excess, also as pearly crystals. It is slightly soluble in boiling water, insoluble in cold chloroform, soluble in hot ether and alcohol.

Bromine Compound ($C_{16}H_6B_2O_6$).—Pearly, yellowish, odorless crystals, very slightly soluble in water, more so in alcohol, ether and chloroform, obtained by gradually adding slight excess of bromine to a concentrated aqueous solution of vanillic acid, and crystallizing the precipitate first from alcohol and then from boiling water.

Vanillic acid being ignited with potash, and the mass afterwards treated with water, hydrochloric acid and ether yielded small white inodorous prismatic crystals, which product the author considers to be a new acid and proposes to call oxyvanillic acid, with the formula $C_{18}H_8O_8$. When vanillic acid was heated in a sealed tube with hydriodic acid, the methyl-hydriodic was obtained.

From these experiments M. Carles is led to conclude that the efflorescence on vanilla is neither of the substances that have heretofore been described, but is a peculiar acid, isomeric with anisic, formobenzoic, methylsalicyclic, creasotic, oxytoluic, and many other acids.—*Pharm. Journ., Lond., Nov.* 23, 1872.

DESCRIPTION OF A NEW QUINIMETRIC PROCESS.

By P. Carles.

Having ascertained, by experiment, that the quinimetric methods in use are not suited for extracting, in a sufficiently pure state to admit of weighing, all the quinia contained in the cinchona barks (the decoction method extracts coloring matter and changes the active principles, while the lixiviation process yields very weak liquors, in which a portion of the alkaloids are kept in solution), I have devised a method which may be carried out as follows:—A good average sample of the bark is ground to powder, and passed through a fine horse-hair sieve; 20 grms. of this powder are intimately mixed with from 6 to 8 grms. of slaked lime, mixed with 35 grms. of water, and the mixture of quina bark and pasty lime dried at a gentle heat; the cake thus formed is reduced to a coarse powder and pressed into a conically-shaped glass tube (or a funnel with stop-cock and glass stopper); chloroform is then gradually poured on to the contents, care being taken to cork the tube at the top; 150 grms. of chloroform will be a sufficient quantity, but it is best to ascertain if the bark is exhausted by evaporating a few drops of the last portion of the chloroform in a porcelain basin; the residue should be treated first with dilute sulphuric acid, and next with chlorine water and ammonia. The chloroform which adheres to the mixture of lime and bark is displaced by the addition of water, and the fluid is next evaporated upon a water-bath until a dry residue is left. If desired to save the chloroform, it can be distilled off in a retort upon a water-bath: the distillation should not, however, be carried on to dryness, but the remainder of the fluid is to be evaporated to dryness in a porcelain capsule, and then treated with dilute sulphuric acid. The solid dry residue consists of the alkaloids of the bark, mixed with about their own weight of waxy-resinous (*céréo resineux*) matters; the alkaloids are taken up by dilute sulphuric acid (1 to 10), of which fluid from 10 to 12 c. c. are sufficient. This solution is filtered through a very small, previously moistened, filter, and the filtrate is colorless; the filtrate is next heated to 100° upon a water bath, and, when hot, ammonia—at first concentrated, afterwards dilute—is added, so as to cause the filtrate to become very nearly saturated,—to be left very slightly acid; all the quinia will then crystallize in the shape of sulphate. This crystallization proceeds rapidly, and the peculiar odor emitted by the fluid, as well as the aspect of the crystals, are of some value in ascertaining beforehand the quality of the bark operated upon. When the liquid has become completely cold the crystalline matter forms a solid cake, which has only to be placed upon a double filter for the purpose of draining: the mother-liquor is displaced by a few drops of water, after which the mass is gently pressed, dried, and weighed.* If the mother-liquor is found to be very acid, ammonia in slight excess should be added, for the purpose of precipitating the rest of the quinia. The other alkaloids remain in solution, and are next separated by precipitation, dried, weighed and tested with washed ether.

This process is simple and expeditious, and yields good results, the quinia being obtained in a colorless state. I quote the following instances of its working:—(1). A mixture was taken of pure sulphate of quinia, 0·60; cinchonia, 0·20; dilute sulphuric acid (1 to 10), 10 c.c.; while hot I poured, by means of a pipette, first concentrated and then dilute ammonia nearly to saturation: result obtained—sulphate of quinia, 0·59; cinchonia, 0·22. (2). Sulphate of quinia, 0·50; cinchonia, 0.25: acid at $\frac{1}{10}$, 10 c. c., found sulphate of quinia 0·52; cinchonia, 0·17. A. Yellow cinchona bark, 20 grms. has yielded per 1000, by the use of Rabourdin's modified process (see *Journ. de Pharmacie,* 1861), strongly-colored crystalline sulphate of quinia, 23.00; with Le Maitre's process, somewhat yellow-colored sulphate of quinia, 22.30; with my process, colorless sulphate of quinia, 26·55. B. Yellow cinchona bark, same quantity, by Rabourdin's process, strongly colored crystallised sulphate of quinia (per 1000), 29·50; Le Maitre's process, yellow-colored sulphate, 26·75; my process, colorless sulphate, 31·25. Trials with other kind of bark yielded similar results, but I should mention that the separation of the quinia as sulphate only succeeds well when the quantity of quinia in the bark greatly exceeds the cinchonia.

To exhibit the effect of an excess of cinchonia I quote the following:—Sulphate of quinia, 0.40; cinchonia, 0·60; acid $\frac{1}{10}$, 10 c. c., yielded—sulphate of quinia, 0.58 (mixed with cinchonia); cinchonia, 0·48: the impure sulphate of quinia thus obtained may be purified, re-crystallised and tested with ether and ammonia.

As sulphate of quinia is completely insoluble in a solution of sulphate of ammonia, there is no fear of any of the sulphate of quinia being left in the mother-liquor if the saturation with ammonia is sufficiently complete. To prove this experimentally, take a small quantity of sulphate of quinia, shake it up in a test-tube three parts filled with cold distilled water, filter and add to the filtrate a few crystals of sulphate of ammonia. After a few minutes the liquid will become a pasty mass: this is filtered, and not a trace of sulphate of quinia is found in the filtrate.—*Chem. News, Nov.* 8, *from Bull. Soc. Chim., Paris.*

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* It is preferable to dry at 100°, and, after having weighed, to add the 12 per cent of water lost by the operation; in that condition it contains 75 per cent. quinia.

COCHINEAL PRODUCTION IN CENTRAL AMERICA*.

The insect is preserved during the winter upon branches cut off from the cactus, and ranged in long, narrow buildings, called *almacenes*, erected for the purpose. The roof of these buildings is from a yard to a yard and a-half wide, and for the first six weeks the front, which is open, is covered with a screen made of cotton cloth, to protect the young insect from a sort of fly that lays an egg among them, which in a few days turns into a caterpillar, and does a great deal of mischief, devouring a large quantity of the young animals; after that period they are left open to the sun and air. It is so arranged that the insects begin to breed in the beginning of October, about which time the rains cease in Amatitlan, though somewhat later in the vicinity and most other parts of the State. The insect is carefully removed from the cactus as soon as it begins to deposit its young, and put into small, square pieces of muslin, calico, or the bark of a description of palm-tree, the latter being cheaper and much more preferable for the month of October, as it does not fall together when damp, like a cotton fabric. The four corners are pinned together with the thorn of a bush (a species of *Mimosa*), which is very abundant in the neighborhood. After about a hundred of the insects have been put in, one of these packets, called by the natives *cartuche*, is attached to each leaf or two, or one to each side between two leaves, which latter method is generally preferred. If the weather is fine and warm, the insect breeds so quickly, that in a few hours each leaf contains a sufficient quantity of the small insect, when the bag must be removed and attached to another leaf; for if it is left too long, the leaf becomes too thickly covered with young insects, which, from being so numerous cannot obtain nourishment, and never attaining the proper size, produce, when dried, a small grained and very inferior cochineal called *granilla*, which is not worth more than half the price of the proper quality. As the cactus is always planted in rows of a certain length, it is usual to cover at one time the leaves of one or more rows with the bags containing the mother insect, and they are sufficiently covered with the young animal, called *jillia*, to remove and attach them to other rows of cactus. This may be done once every day, if the weather is fine ; but if it is windy and cold, they have often to remain three or four days without moving, for the wind blows away the insects as they creep out of the bag, and prevents them from attaching themselves to the leaves. The insect does not breed so fast if the weather is chilly, and a large portion is often killed on the leaves ; even a heavy dew will destroy many at the first stage. In the October seeding in Amatitlan, when it is never required to load the plant, the weather being fine, and the mother cochineal in a thriving state, the bags may often be shifted ten or twelve times before it has done breeding ; but if the weather be at all unfavorable, or the mother cochineal in a sickly state, or too soon or too late gathered, it cannot be shifted nearly so often.

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* Abridged from the Journal of Applied Science.

When the mother cochineal has done breeding, or when the young insect begins to be sickly and of a dark red color, the bags are taken off, and their contents shaken out and dried in the sun ; and when sifted, they form what is denominated in the country *zaccatilla*, and in England "black cochineal," which always fetches a higher price than the silver cochineal, the name given to it when the insect is dried before commencing to breed. During the first stage of its growth, as already remarked, the young insect is very easily injured ; but when about ten days old, it is not nearly so easily destroyed. Still, as heavy showers of rain sometimes occur in October, it is nothing rare for the cochineal grower to find nearly all his labor and outlay lost, and a great part of his crop destroyed in a few minutes ; but when such misfortunes occur, all the growers suffer nearly equally, consequently the price is enhanced, and the loss is in some degree compensated by the increased value of what remains. In Amatitlan, such accidents only occur to the first crop, seeded in October, the greater part of the produce of which is always used for seeding the cochineal estates in old Guatemala in the month of January, and, when the crop is not large, fetches a much higher price than it would be worth if dried for exportation. In about twenty days after the young insect has attached itself to the leaf, it changes its skin, which is called the first *muda* (change or transformation) ; and in about a month more it again undergoes the same process, at each of which periods it slightly shifts its position on the leaf. At the time of the second change the male makes its appearance in the shape of a very small fly, but how it is produced is, strange to say, not quite determined. All the natives, and even the foreigners, in Guatemala, who state that they have made experiments for the purpose of ascertaining it, assert that it is produced by the female at the second change—that is to say, about the middle of its growth; but this would appear quite impossible from all data in natural history.

I had not leisure to make proper experiments, but an intelligent North American gentleman, a doctor by profession, who had done so, informed me, that previously to, and some time after the second transformation or casting of its skin, the male and female insects are nearly equal in number, and cannot be distinguished on the leaf; but, that about fifteen days after the first transformation, all the male grubs change into chrysalids, interring themselves in a downy covering, and weaving a small thread, let go their hold of the leaf, and hang by it for about fifteen days more, when the female is in the second change. About this time the chrysalis hatches, and the male makes it appearance as stated; and almost immediately after impregnating the female, falls off the leaf and dies. When the smallest quantity of rain occurs about this period, the males are washed off before the females are impregnated, and the insect is barren.

In from eighty to ninety days, according to the nature of the weather, the cochineal insect attains its full growth in Amatitlan, and commences to breed. It is then left upon the leaf long enough to produce a sufficient quantity of young insects for the second crop, which attach themselves to the same leaves, and in the same manner as the first; and the full-grown insect is removed by touching it with a small piece of cane, and offered for sale in flat baskets, each containing about twelve pounds weight of the insect. The greater part of the crop is sent, as before stated, to Old Guatemala for the purpose of seeding the cochineal estates there. This process is nearly identical with that of the October seeding, in Amatitlan, already described, only that a larger quantity of the insects are allowed to attach themselves to the leaves; and some parties attach the mother cochineal in small pieces of reed instead of bark or cloth.

In Old Guatemala all the cochineal estates are seeded but once in the year, from the beginning of the month of January to the middle of February; but as the climate there is considerably colder than in Amatitlan, the insect does not obtain its full size, so as to be fit for gathering, in less than a hundred days after it has attached itself to the plant; and as the rainy season often commences in the beginning of May, a great part of the crop is frequently lost by being washed off by the rains before it is fit for gathering. In Amatitlan the second crop is ready for getting in eighty days after the first has been gathered, and is therefore always got in before the rains commence, which certainly gives it great advantages over Old Guatemala; but the second crop is always much smaller grained and worth considerably less than the first. Labor is also much dearer in Amatitlan than Old Guatemala, and an estate of equal extent costs at least twice as much to keep it in order—the wages in the former place being 2½ to 3 reals (equal to 1s. 3d. to 1s. 6d.) per day, and in the latter, 1½ reals (equal to 9d). Beside this, the cactus and cochineal insect have a number of enemies in Amatitlan which do not exist in Old Guatemala. The principal injury to the former is sustained from a species of large ant, called senpope, which eats all the young shoots of the cactus, so as to prevent its increasing. The nests of this insect are very large, and sometimes extend to a depth of twenty feet in the ground, along which they run for some fifteen or twenty yards, and the insects are often so numerous, that if let alone they will entirely destroy a cochineal estate. The natives have no means of destroying them, except digging them out of the ground; and though I discovered a means of poisoning them by pouring into their holes water in which a small quantity of corrosive sublimate had been dissolved, I do not suppose that the discovery will generally be made use of by the inhabitants, who are too stupid and ignorant to understand anything not palpable to the eye.

The principal enemies of the cochineal insect are three sorts of caterpillars, called by the natives "gusanos" (worms); the most common resembles an ordinary caterpillar, and is produced from the egg of a small fly, in shape like a wasp, but without a sting. These are sometimes so numerous that two or three may be seen on each leaf of the cactus, and if not speedily taken off, will, in a month—the period of their existence—eat up nearly all the cochineal insects. Another sort spin a web, with which they entangle the insect and destroy it; and the third, called "anguilla" (the eel), which is by far the most destructive, moves over the leaf like an earthworm, eating all the insects, when small, with surprising rapidity, and transferring itself to another leaf, proceeds as before. Luckily this last mentioned species only makes its appearance in some years, and is never nearly so numerous as the first named. No means have yet been found of destroying these caterpillars, except employing people to pick them off, which is done at so much for every twenty grubs, according to their abundance or scarcity, the price being seldom under what is equivalent to a half-penny for each twenty, or above one penny for that number. Still, when the grubs are very numerous, it is sometimes necessary to abandon the crop of cochineal, which is not worth the expense of picking off the caterpillars; this of course is, however, a rare occurrence, and never happens to the whole of an estate of any size.

With all its objections cochineal growing has certainly been more profitable in Amatitlan than in Old Guatemala, or any other place yet discovered. Nearly all the cultivators in Amatitlan are well off, and many who were without means a few years ago, are now rich for Central America, having a fortune of from 10,000 to 30,000 dollars; while nearly all who have attempted the cultivation in Old Guatemala have been ruined, and very few have realized any money. Still the supposed fatality of the climate of Amatitlan has so great an effect as not only to raise enormously the price which must be paid to the workpeople to induce them to do the necessary labor, but keeps the value of cochineal estates rather lower than in Old Guatemala.

The second crop of cochineal is fit for gathering in Amatitlan from the end of March to the 20th of April; and the crop in Old Guatemala from the middle of April till the 10th or 20th of May, according to the season. Nearly the whole of both these crops are dried and cleaned for exportation to Europe, of which they are the principal source of supply. But a small number of insects are preserved, and being put into small bags, similar to those before described, are attached to leaves carefully ranged upon shelves under the long narrow buildings, called *almacenes*, the leaves being seeded in a similar manner to the growing plants. The insects attain their full size and commence to breed again in about ninety days, which brings it to the month of July, when those so reared are gathered and attached in the same manner to fresh leaves of the cactus, ranged under cover as before; this crop is again ready for gathering in the month of October, when the rains cease in Amatitlan, and is sold for seeding the cochineal estates. The price being regulated by the supply, as compared with the demand, is but little affected by the value of dry cochineal; the live insect being always then worth at least three or four times its value in the months of April or May, when it is dried for exportation. A good cochineal estate requires, in the month of October, from 100 to 140 pounds of the live mother insect to seed each *mansana* of 100 Spanish or 89⅓ English yards square, and each pound of the insect so used ought, if the weather be good and all circumstances favorable, to produce 8 lbs. in the crop time. The January seeding in Old Guatemala being much heavier, as only one crop is there taken, from 150 to 170 lbs. are generally used to seed each *mansana.* In Amatitlan, the first crop collected in January generally yields from 800 to 1,200 lbs. of the live insect from each *mansana* of cactus in a really good estate, which is sold at from 2½ to 8 reals (1s. 3d., to 4s. sterling) a pound, according to the demand and the abundance of the crop, &c., but the first crop is, one year with another, calculated to pay all the expenses of weeding and managing the estate, and the cost of the seed cochineal insect and labor of seeding it, &c. The second crop is always dried, and each *mansana* will yield from 1,800 to 2,700 lbs. of the insect and from 600 to 900 lbs. of dry cochineal, which is considered to be the net profit of the cultivation.

In Old Guatemala, each *mansana* ought to give 3,150 to 4,050 lbs. of the live insect, and 1,050 to 1,350 lbs of dry cochineal; three pounds of the live insect yielding as nearly as possible one of dry cochineal.

The cost of production in Old Guatemala one year with another, allowing for the current losses from rain, &c., is rated at 4 reals (or 2s. sterling) per pound. The cochineal insect, when not intended for breeding, is, as soon as gathered, spread out very thin upon flat shallow trays made of cane and covered with cotton cloth, and put into stoves constructed on purpose, each capable of containing from 100 to 200 baskets, and either heated by burning charcoal put into large clay vessels made on purpose, or by a small brick flue into which wood can be put and lighted from the outside (the former method is the most costly and tedious, but gives the finest colored cochineal). When completely dry it is sifted, cleaned and packed in bales covered with an untanned ox-hide, containing 150 lbs., in which state it is sent to Europe for sale. During the wet season a cochineal estate requires almost constant attention in cleaning and keeping down the weeds, and this must be done at least five times in the year in Amatitlan, or the cactus will be injured; though in Old Guatemala not more than two or three cleanings are given. The cactus must also be pruned at least twice in the year, once at the commencement of the rearing season in May, to make it sprout strongly, and again at the commencement of the dry season in October, when it is necessary to remove the long shoots, which would by their weight break down the cactus, and to trim the plants so as to give them an equal weight and form.

Varieties.

The International Exposition at Vienna, Austria, which will take place during the coming summer, is attracting considerable attention throughout the United States. The following, which we copy from the "Journal of Applied Chemistry," has special reference to that group which will contain the crude articles and manufactured products of the drug business, and which, it is to be hoped, will not lack in variety and completeness:

At a meeting of citizens of New York, convened upon invitation of General Thos. B. Van Buren, United States Commissioner, to devise measures to promote the objects of the approaching Exhibition at Vienna in 1873, it was resolved to appoint an *Advisory Committee*, to consist of one member for each *group*, upon whom should devolve the duty of arousing public attention to the importance of securing a creditable representation of the resources and products of the United States in Austria.

The undersigned, having been requested to take charge of the Department of Chemical Industry, begs leave to call the attention of all persons interested in the subject to the classification of the Austrian Commissioners given below, and to solicit specimens for transmission to Vienna, in the event of an appropriation being made by Congress to pay the expenses of transportation.

CLASSIFICATION OF THE IMPERIAL COMMISSIONERS.—GROUP 3.—CHEMICAL INDUSTRY.

(*a*) Chemical products for technical and pharmaceutical purposes—acids, salts, chemical preparations of all sorts.

(*b*) Raw substances and products of pharmacy, mineral waters, &c.

(*c*) Fats and their products—stearin, oil acids, glycerin, soaps, candles and tapers, &c.

(*d*) Products of dry distillation, as refined petroleum, slate oil, paraffin, phenylic acid, benzin, anilin, &c.

(*e*) Etherial oils and perfumeries.

(*f*) Matches, &c.

(*g*) Dyestuffs, mineral and organic.

(*h*) Resins (washed, dyed or bleached), sealing wax, varnish, albumen, isinglass, glue, starches, dextrin, &c.

(*i*) Contrivances and processes used in chemical productions.

(*k*) Statistics of production.

Application for permission to exhibit, inclosing statistics of production, should be addressed to General Thos. B. Van Buren, United States Commissioner, No. 51 Chambers street, New York, or to Charles F. Chandler, Ph. D., Chairman of Group 3, Advisory Committe, School of Mines, Columbia College, Forty-ninth street, corner Fourth avenue, New York.

The following gentlemen will be consulted upon questions relating to Chemical Industry.

Dr. M. Alsberg, Brooklyn, N. Y.
Prof. J. H. Appleton, Providence, R. I.
Prof. Geo. F. Barker, New Haven, Ct.
William T. Blodgett, Esq., New York.
Prof. James C. Booth, Philadelphia, Pa.
C. Elton Buck, Esq., Wilmington, Del.
Prof. G. C. Caldwell, Ph.D., Ithaca, N.Y.
Prof. W. H. Chandler, Bethlehem, Pa.

Prof. Albert H. Chester, E.M., Clinton, N. Y.
Bela P. Clapp. Esq., Pawtucket, R. I.
Peter Cooper, Esq., New York.
Prof. R. Ogden Doremus, New York.
Prof. Silas H. Douglass, Ann Arbor, Mich.
Samuel Downer, Esq., Boston, Mass.
Prof. John C. Draper, New York.
William Duryea. Esq., New York.
Edward P. Eastwick, Esq., Boston Mass.
Prof. A. E. Foote, Ames. Iowa.
Prof. F. A. Genth, Philadelphia.
G. W Gesner, Esq., New York.
Prof. Wolcott Gibbs, Cambridge, Mass
Prof. C. A. Goessman, Amherst, Mass.
Wm. M. Habirshaw, Esq., New York.
James L. Harway, Esq., New York.
S. Dana Hayes. Esq., Boston, Mass.
Prof. B. S. Hedrick, Washington, D.C.
Prof. Eugene W. Hilgard, Ph.D., Oxford, Miss.
Joseph Hirsh. Esq., Chicago, Ill.
Charles W. Hull, Esq., New York.
Prof. S. W. Johnson, New Haven, Ct.
Prof. Charles A. Joy, New York.
Martin Kalbfleisch, Esq , Brooklyn, N. Y.
M. Lacour, Esq., New York.
Jas. F. Magee, Esq., Philadelphia, Pa.
Prof. Jno. M. Maisch, Philadelphia, Pa.
Prof. John W. Mallett, University of Virginia, Va.
Joshua Merrill, Esq., Boston, Mass.
R. G. Mitchell, Esq., New York.
Dr. James R. Nichols, Boston, Mass.
Prof. John M. Ordway, Boston, Mass.
C. C Parsons, Esq., St. Louis, Mo.
H. Pemberton, Esq., Natrona, Pa.
Charles Pfeizer. Esq., New York.
Prof. W. B. Rising, Oakland, Cal.
Carl. H. Schultz, Esq , New York.
Prof. Paul Schweitzer. Columbia, Mo.
Prof. Chas. A. Seely, New York.
Prof. B. Silliman, New Haven, Conn.
Prof. J. Lawrence Smith, Louisville, Ky.
Dr. Edward R. Squibb, Brooklyn, N.Y.
Prof. F. H. Storer, Roxbury, Mass.
B. Tilghman, Esq., Philadelphia, Pa.
Prof. S. D. Tillman, New York.
Dr. John Torrey, New York.
John Tracy, Jr., Esq., New York.
David K. Tuttle, Ph.D., Baltimore, Md.
Dr. Isidor Walz, New York.
Prof. Cyrus M. Warren, Boston, Mass.
William Weightman, Esq., Philadelphia, Pa.
Prof. T. G. Wormley, Columbus, Ohio.
Prof. Henry Wurz, New York.

The International Exposition at Philadelphia in 1876.—The United States Centennial Commission has issued the following address relating to the contemplated international exposition :

To the People of the United States :—The Congress of the United States has enacted that the completion of the One Hundredth Year of American Independence shall be celebrated by an International Exhibition of the Arts, Manufactures and Products of the soil and mine, to be held at Philadelphia, in 1876, and has appointed a Commission, consisting of representatives from each State and Territory, to conduct the celebration.

Originating under the auspices of the National Legislature, controlled by a National Commission, and designed as it is to "Commemorate the first Century of our existence, by an Exhibition of the Natural resources of the Country and their development, and of our progress in those Arts which benefit mankind, in comparison with those of older Nations," it is to the people at large that the Commission look for the aid which is necessary to make the Centennial Celebration the grandest anniversary the world has ever seen.

That the completion of the first century of our existence should be marked by some imposing demonstration is, we believe, the patriotic wish of the people of the whole country. The Congress of the United States has wisely decided that the Birth-day of the Great Republic can be most fittingly celebrated by the universal collection and display of all the trophies of its progress. It is designed to bring together, within a building covering fifty acres, not only the varied productions of our mines and of the soil, but types of all the intellectual triumphs of our citizens, specimens of everything that America can furnish, whether from the brains or the hands of her children, and thus make evident to the world the advancement of which a self-governed people is capable.

In this "Celebration" all nations will be invited to participate ; its character being International. Europe will display her arts and manufactures, India her curious fabrics, while newly opened China and Japan will lay bare the treasures which for centuries their ingenious people have been perfecting. Each land will compete in generous rivalry for the palm of superior excellence.

To this grand gathering every zone will contribute its fruits and cereals. No mineral shall be wanting: for what the East lacks the West will supply. Under one roof will the South display in rich luxuriance her growing cotton, and the North, in miniature, the ceaseless machinery of her mills, converting that cotton into cloth. Each section of the globe will send its best offerings to this exhibition, and each State of the Union, as a member of one united body politic, will show to her sister States and to the world how much she can add to the greatness of the nation of which she is a harmonious part.

To make the Centennial Celebration such a success as the patriotism and the pride of every American demands will require the co-operation of the people of the whole country. The United States Centennial Commission has received no Government aid, such as England extended to her World's Fair, and France to her Universal Exposition, yet the labor and responsibility imposed upon the Commission is as great as in either of those undertakings. It is estimated that ten millions of dollars will be required, and this sum Congress has provided shall be raised by stock subscription, and that the people shall have the opportunity of subscribing in proportion to the population of their respective States and Territories.

The Commission looks to the unfailing patriotism of the people of every section, to see that each contributes its share to the expenses, and receives its share of the benefits of an enterprise in which all are so deeply interested. It would further earnestly urge the formation in each State and Territory of a centennial organization, which shall in time see that county associations are formed, so that when the nations are gathered together in 1876 each Commonwealth can view with pride the contributions she has made to the national glory.

Confidently relying on the zeal and patriotism ever displayed by our people in every national undertaking, we pledge and prophecy that the Centennial Celebration will worthily show how greatness, wealth and intelligence can be fostered by such institutions as those which have for one hundred years blessed the people of the United States.

Joseph R. Hawley, *President*,
Lewis Waln Smith, *Temporary Secretary*.

The Ferris Bringhurst Memorial Fountain.—The following, which we clip from the "Delaware Tribune," bears testimony that the unfortunate Ferris Bringhurst was as highly appreciated in his native city, Wilmington, as he was respected and beloved by a large circle of American pharmacists:

In memory of and respect for the late Ferris Bringhurst, who, when living, was always a leading and unpretentious spirit in some philanthropic work, principal among which was the Wilmington Fountain Society, a drinking fountain of beautiful design has been erected at the intersection of Delaware and Pennsylvania avenues.

The work of erection and finishing was completed November 15th. The base is of American gray granite, five feet high, while the column or shaft, eleven feet high, is of Aberdeen red granite, of Scotland, similar to that of which the Egyptian Obelisks were made, and said to be as durable, and will retain the bright polish for centuries.

The capitol is of gray granite, while the beautiful urn on the top is of red Aberdeen granite. On the east side of the base is the following inscription: "To the memory of Ferris Bringhurst, First President of the Wilmington Fountain Society." Another appropriate inscription, on the south side of the base, is: "Kindness to God's Creatures is a Service Acceptable to Him."

The work has been done entirely by private subscription with the exception of a donation of $250 voluntarily made by City Council, the lot being presented by Mr. J. Taylor Gause, and the city granting a free use of the water. The fountain complete was made by Struthers and Sons, of Philadelphia, at a cost of about $2000. The enclosure is yet to be neatly paved, and will have a neat iron railing of a light pattern when finished.

The work is an appropriate memorial of one whose works were so charitable and benevolent, and at the same time so disinterested and unassuming.

Pharmaceutical Colleges and Associations.

The Colleges of Pharmacy in the United States have larger classes during the present session than ever before. The Philadelphia College of Pharmacy has within the last seven years more than doubled the number of its students, and all other Colleges show similar marks of prosperity—a sure sign that the value of the scientific education of pharmacists is being more appreciated now than heretofore.

The New York College of Pharmacy have arranged monthly conversational lectures, which will be delivered by Mr. P. Balluff, Dr. E. R. Squibb and Professors Day and Chandler.

The Louisville College of Pharmacy has received a donation to its cabinet from Messrs. E. Sachsse & Co., Leipzig, Germany, of 19 specimens of fine essential oils. The Board of Trustees, at their meeting of Dec. 16th instructed the Corresponding Secretary, by a unanimous vote, to tender, through the "American Journal of Pharmacy," their cordial thanks to the said firm for its valued gift. Wm. G. Schmidt, *Corresponding Sec'ry.*

The Faculty of the California College of Pharmacy has been constituted as follows: Max Tschirner, professor of Chemistry; Wm. T. Wenzell, professor of Pharmacy; Wm. Searby, professor of Materia Medica, and H. H. Behr, M. D., professor of Botany.

The Pharmaceutical Society of Great Britain held a pharmaceutical meeting Dec. 4th, Mr. A. F. Haselden presiding.

Professor Bentley drew the attention of the meeting to a section of the baobab-tree, which had been forwarded to the Society by Mr. Baynes, who was formerly the artist of the Livingstone expedition. Mr. Baynes stated that the bark was used as a substitute for quinia. In most manuals treating of the properties and uses of plants, the bark of the baobab-tree was reputed to be used medicinally, and as an authentication of that, Mr. Baynes' contribution was of value.

Dr. Paul asked the attention of the meeting to a table which had been forwarded by Mr. Ekin, of Bath, in which the nutritive values of various articles of food were represented on the basis of the respective percentage of carbon and nitrogen. This mode of valuation was somewhat hypothetical, but it afforded a fair ground of comparison between different articles of food within certain limitations. The table was constructed in such a way as to show these comparative values graphically. Though the use of graphic formulæ in chemistry were not to be recommended or regarded as very serviceable, he thought that in a case like the present, and within certain limits, a table of that kind with the graphic method of representing fact might be of use.

Professor Redwood called attention to an apparatus which had been placed in the room for the inspection of the members. It was a form of apparatus which was very generally used by pharmacists in Germany, and had at his suggestion been imported by Messrs. Zimmermann & Co., of the City. The apparatus provided in a small compass means for conducting the various pharmaceutical operations of boiling, distilling, infusing, digesting, etc.

Mr. Cooper exhibited a specimen of effervescing lozenges, which, he said, he had been some years endeavoring to produce. He was in hopes that by means of these lozenges certain medicines might be administered in a more pleasant way than by the present methods.

Professor Redwood remarked that Mr. Cooper seemed to have made an important step in the direction of elegant pharmacy.

Mr. Cooper added that if these lozenges had been produced twenty years ago, homœopathy would not have held its own.

Mr. Wootton described several specimens of French elegant pharmacy, which, he observed, were perhaps not very important, though interesting for the excellent manner in which they were made. Among those he referred especially to some sulphovinate of soda (prepared as described in the *Pharmaceutical Journal* of last June.) There was also on the table a drop measure, which he said was the neatest thing he had ever seen, and was mathematically correct. The section of the tube was three milligrams in diameter. There was also a table showing the number of drops to the gram of various liquids, varying from water 20 drops, to ether 98 drops to the gram.

Mr. Williams said that within the last two months considerable demand had arisen for croton chloral hydrate, which, although not a new thing, having been introduced two years ago, had not hitherto been much used in medical practice in this country. It was stated to be of great value in nervous diseases affecting the face. It was made by passing dry chlorine into aldehyde, but the first experiments failed ; it was found to be a very difficult body to manufacture, in consequence of the bad quality of the aldehyde. That prepared by the process usually given was a very impure body, and, in fact, quite unfit for the purpose of making croton chloral. He had, therefore, brought a specimen of what he believed to be nearly pure aldehyde, a thing he had never seen before, and of which he thought few in the room had any knowledge. It was a powerful body, and probably might be recommended for medicinal use. In the first place, it had great affinity for oxygen. If a stoppered bottle were half filled with it and left for a short time, the stopper would be held so tight that there would be a difficulty in removing it, for the whole of the oxygen left in that portion of the bottle was absorbed by the aldehyde. They knew very well that the spirits of nitre was a very favorite remedy. The Edinburgh Pharmacopœia a few years ago ordered spirits of nitre to be made with nitrite of ethyl. He believed he was right in saying that that preparation did not give satisfaction, and was not looked upon as a good medicinal article. An opinion had been held that aldehyde played an important part in the medicinal action of spirits of nitre. Medical men could now determine for themselves whether aldehyde had any important medicinal action or not, but if they breathed this specimen, he thought they would agree with him that it was likely to be a very potent one indeed. Speaking theoretically, he thought it ought to prove one of the most powerful anæsthetics known. The croton chloral hydrate smells of lemon It is formed by two molecules of aldehyde, less one molecule of water, the three atoms of hydrogen being replaced by three atoms of chlorine; croton chloral was the result, the hydrate forming the beautiful crystalline body before them.

The following papers were then read and discussed: Apparatus for Macerating, by Mr. R. W. Giles; On the Extracts containing Chlorophyll, by Mr. J. B. Barnes: A Dispensing Note on Chloral Hydrate, by Mr. J. G. Plumer; On Sulphuretted Antimony, Official and Commercial, by Mr. J. Moss.

The North British Branch of the Pharmaceutical Society opened its new rooms on November 22d. The president, Mr. H. C. Baildon, delivered the introductory address, after which Mr. J. Mackay read a paper on Pharmaceutical Education, which elicited an animated discussion. A number of specimens and books were presented to the museum and library, both of which are being made available to all connected with the society every day from 10 A. M. till 4 P. M., and, Saturdays excepted, in the evening from 6 till 10 o'clock.

Pharmaceutical Society of Paris.—Mr. Stan. Martin presided at the meeting held October 2d After the presentation of books and specimens, Mr. Mehu read several extracts from English and American journals, treating of the means to avoid mistakes in dispensing.

Mr. Marais exhibited specimens of orange-flower water, made by distillation with steam, and preserved for 12 years; distilled over the naked fire, it cannot be kept for that length of time. His method of preparation is to pass a jet of steam into Soubeiran's alembic, containing a mixture of equal weights of flowers and hot water. Mr. Martin stated that this distilled water, if well prepared, yields to chloroform a very agreeable odorous principle.

Mr. Roucher showed several varieties of oxide of lead, of a yellow, bronze, black and red purple color, the latter being obtained by acting upon the hydrated oxide with a rather concentrated solution of caustic potassa.

Mr. Planchon exhibited English rhubarb as found in French commerce; though resembling to some extent Chinese rhubarb, it is readily distinguished from it by being less marbled upon the fracture and by the absence of the diamond shaped meshes upon the surface; it is probably obtained from Rheum rhaponticum. A new kind of rhubarb from the Amoor river, which possesses the characters of a medium quality of Chinese rhubarb, sells in London at 4 to 6 francs per kilogram. Mr. Marais stated that for some time, Austrian rhubarb was endeavored to be introduced into commerce.

Mr. Lebaigne read a paper on the best means to avoid mistakes in pharmacies, which created a long discussion, the subject being at last postponed to the next meeting.

Minutes of the Philadelphia College of Pharmacy.

A stated meeting of the College was held December 30th, 1872, Dillwyn Parrish, President, in the chair: 14 members present. The minutes of the last meeting were read and approved. The minutes of the Board of Trustees were read by Wm. C. Bakes, Secretary of the Board, and approved.

The minutes of the Board inform that the Alumni Association had transferred to the College the fixtures and apparatus of the School of Practical Chemistry and Pharmacy.

The Committee on Deceased Members reported progress with the memoir of Prof. Parrish.

W. C. Bakes reported further acknowledgments of the reception of the certificates of honorary and corresponding membership. The letter of Carl Frederking, of Riga, was referred to the Corresponding Secretary, to be answered.

On motion, the Board of Trustees were directed to effect an insurance on the fixtures and apparatus of the School of Practical Chemistry.

On motion, then adjourned. Charles Bullock, *Secretary.*

Minutes of the Pharmaceutical Meetings.

A Pharmaceutical Meeting was held December 17th, 1872, Prof. Procter in the chair; William McIntyre, in the absence of the Registrar, acting as Registrar pro tem:

The minutes of the last meeting were read and approved, after correcting the price of ceresin to 46 cents gold per ℔.

Mr. Shinn introduced Prof. Markoe of Boston, and presented, in behalf of Thos. H. McAllister, to the College various volumes of the American Journal of Pharmacy.

Prof. Maisch read a paper on impurities in ladies' slipper root* and exhibited preserved specimens of roots and flowering plants of *Cypripedium pubescens, C. parviflorum* and *C. acaule*; also commercial samples of pure cypripedium, and some admixed with hydrastis, senega and other dicotyledonous roots.

In answer to a question by Mr. Shinn, Prof. Procter stated that there was considerable demand for cypripedium by eclectic physicians, who use it in such cases in which valerian is indicated.

Mr. Remington read a paper on ceresin† and exhibited a sample of simple cerate prepared from it. Nothing can be said as yet about its keeping qualities, the time being too short. It was remarked that cerate prepared from paraffin quickly spoils, while yellow wax and benzoinated lard preserve it for a long time.

Mr. Shinn remarked that emulsions of codliver oil containing phosphate of lime were being prescribed by physicians, and asked the experience of those present in making emulsions containing large quantities of fixed oils. He had samples from two makers, both of which separate and became rancid after some time; the quantity of lime salt in both is stated in ambiguous terms. The fair method would be to state the quantity of phosphate of lime, lactic acid and codliver oil in a certain measure.

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*See page 9 of the present number.

†Published on page 11 of this number.

Prof. Procter had used a mixture of tragacanth and acacia in proportion of 1 to 6, and the product is rather thick.

Prof. Maisch said one maker of this emulsion has lately obtained a patent, which, however, is probably of no value. As early as 1855 he prepared emulsions containing 50 per cent of codliver oil, with alkalies and alkaline earths,* which may be sweetened and flavored to taste. This is not a true emulsion, but a partial saponification.

Mr Shinn had used lime water, 2 ounces to a pint, in conjunction with gum arabic; also sucrate of lime, by means of which a 75 per cent emulsion can be prepared and mixed with syrup of phosphate of lime and lactic acid.

Mr. Remington remarked he had seen a communication from an attorney threatening certain parties with prosecution for infringement of patent if they did not desist in the manufacture of this preparation; but apparently the threat would not be carried out.

Prof. Maisch said a method is much needed whereby fixed oils can be emulsionized as readily as volatile oils, ether and chloroform are by the method of J. W. Forbes.†

Mr. Shinn had seen a patent churn in use as a labor saving agent where large quantities of emulsions are used.

Prof. Maisch presented a well made sample of benzoinated oxide of zinc ointment, prepared by A. H. Bolton in a paint mill.

Mr. Boring exhibited cucumber ointment in good condition, made in 1868, by the method as modified from the French formula by Prof. Procter,‡ who having tried various methods stated that with this one success depends upon time and patience properly expended upon it.

Prof. Markoe, at the suggestion of Mr. Shinn, addressed the meeting and spoke about his recent visit to England, describing several of what may be termed representative pharmaceutical establishments of Great Britian which he visited in Liverpool, Harrowgate, Leeds, Newcastle, Edinburgh, London, &c. The proprietors rarely reside in the same building in which the business is carried on, but if the number of employees is sufficiently large a housekeeper is usually employed, the clerks residing and taking their meals on the premises. The current literature, especially scientific, and a well-selected library is not unfrequently met with, the clerks having access to it in the evening. In some stores apprentices are never employed, only qualified assistants, those acting as dispensers, having their separate counters, each with complete apparatus and appurtenances, as for instance in Mr. Abraham's store, in Liverpool, where there are four dispensing counters. The precautions against mistakes with poisons, adopted by several British pharmacists, were mentioned, and a description was given of the alkali works at Newcastle-on-Tyne. The speaker then spoke about the Brighton Meeting of the British Pharmaceutical Conference, at which he was present, and said that the attendance was not as large as that at the meetings of the American Pharmaceutical Association, if the membership and the short distances which the British pharmacists have to travel is taken into consideration. Percolation, which is well understood and so indispensible here, is little known and practised there. The speaker's impression is that the British pharmacists, as a class, at least in the larger cities, are chemists and men of education, but that galenical pharmacy is better understood here.

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* See American Journal of Pharmacy, 1856, p. 1.

† See American Journal of Pharmacy, 1872, p. 61.

‡ See American Journal of Pharmacy, 1853, p. 409.

The meeting then adjourned.

William McIntyre,
Registrar pro tem.

Editorial Department.

The Twenty-first Annual Meeting of the American Pharmaceutical Association will take place September 16th next, in the city of Richmond, Va. We have already received many letters announcing the intention of pharmacists residing in different parts of the country, to be present on that occasion, so that even at this early date the prospects for a full attendance are very flattering; and we desire to direct the attention of our friends in the Southern States to this, so that they may make timely arrangements to be present. The Local Secretary is Mr. Thos. H. Hazard, Richmond, Va.

Pharmaceutical Legislation.—We have received information that efforts will be made again in several States to have suitable laws enacted with the view of regulating the practice of pharmacy. The laws which are now in force in five or six States have already had a very beneficial effect in preventing incompetent persons from becoming proprietors of stores, or from acting in the capacity of assistants. An important result of this movement has been that more importance is now attached to the proper education of the young pharmacists, and that the facilities of acquiring pharmaceutical knowledge have been considerably increased of late years. A conscientious enforcement of the laws, where such exist, must result in still greater and lasting benefit to our profession, as well as to the public in general. There are some who may feel aggrieved by violations of the law; it will not be sufficient for them to merely complain about its inefficiency, but they should endeavor to furnish proper and sufficient proof to the authorities, so that the offending parties may be prosecuted. We have received two complaints, such as we have referred to, from within the city limits of Philadelphia, and it is very probable that similar conditions may exist in other localities where pharmaceutical laws have been passed. It is not only to the pecuniary, but also to the professional interest of every pharmacist, that the efficiency and the usefulness of such laws should be thoroughly tested, before modifications are demanded.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Proceedings of the Fourth Annual Meeting of the California Pharmaceutical Society, held at San Francisco, October, 1872. *Also, the Constitution, By-Laws and Roll of Members.* San Francisco: A. L. Bancroft & Co., Printers. 1872. 8vo, pp. 66.

We have already reported on this meeting, on page 524 of our last number. It is gratifying to notice the flourishing condition of this Society, which has 135 active members on its roll.

Circular of Information of the Bureau of Education for March, 1872. Washington: Government Printing Office. 1872. 8vo.

It contains three interesting statistical papers, as follows: An Inquiry concerning the Vital Statistics of College Graduates; Distribution of College Students, in 1870–71; Facts of Vital Statistics in the United States, with tables and diagrams.

CATALOGUE

OF THE

Class of the Philadelphia College of Pharmacy,

FOR THE FIFTY-FIRST SESSION, 1872–73.

With a List of their Preceptors and Localities.

MATRICULANTS.	TOWN OR COUNTY.	STATE.	PRECEPTOR.
Ackerman, David, Jr.	Bangor,	Pennsylvania.	R. Shoemaker.
Addis, S. D.	Easton,	"	J. S. Hunt, M.D.
Acker, Louis, K.	Phillipsburg,	"	George R. Vernon.
Allen, James A.		New Jersey.	Dungan, Wheeler & Pape.
Alvarez, Miguel,	Cienecfuegos,	Cuba.	Ernest Triolet.
Anderson, Clarence,	Philadelphia,	Pennsylvania.	Ed. D. Chipman.
Antill, Joseph, Jr.	"	"	S. Levin Dilks.
Apple, A. A.	Hellertown.	"	J. Van Buskirk, M.D.
Auginbaugh, Ch.	Riegelsville.	"	M. B. Stees, M.D.
Babb, E. H.	Philadelphia,	"	W. J. Jenks.
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Rowe, J. M.	Tarboro,	North Carolina.	Charles Shivers.
Rowley, Isaac H.	Philadelphia,	Pennsylvania.	Hance, Bros. & White.
Royer, P. R.	Akron,	"	J. Koningmacher.
Royston, J. L.	Lancaster.	Kentucky.	W. H. Rinker.
Ruggles, Dexter L.	Williamsport,	Pennsylvania.	Wm. D. Harrison.
Russell, George M.	Philadelphia,	"	Wm. R. Warner & Co.
Salvador, John H.	"	"	E. P. Bernardy, M.D.
Sanborn, Gust. A.	"	"	Sanborn & Butler.
Savage, Frank S.	"	"	J. R. Angney, M.D.
Schmidt, Henry,	Cincinnati.	Ohio.	C. C. Spannagel.
Schnabel, Charles,	New York,	New York.	J. F. Conway, M.D.
Sher, F. P.	Philadelphia.	Pennsylvania.	J. W. Dallam & Co.
Smith, A. E.	Williamsburg,	Virginia.	L. Henley, M.D.
Smith, Cyrus P.	Lebanon,	Pennsylvania.	V. B. Allwein, M.D.
Smith, Theodoric,	Baltimore,	Maryland.	
Smith, Milnor,	Philadelphia.	Pennsylvania.	John M. Maris & Co.
Smith, O. L.	Columbus,	Georgia.	A. M. Brannon.
Smith, Rush B.	Norristown,	Pennsylvania.	C. Ellis, Son & Co.
Sparrow, Charles,	Leavenworth,	Kansas.	E. Parrish & Son.
Spence, Samuel B.	Fond du Lac,	Wisconsin.	Kalk & Kent.
Spriggs, J. S.	Monmouth,	Illinois.	Spriggs & Bro.
Stansbury, Wilson,	Mechanicsburg,	Pennsylvania.	Thomas H. Franklin.
Stem, W. N.	Easton,	"	T. A. Walkea.
Stewart, A. B.	Philadelphia.	"	W. F. Simes & Son.
Stewart, R. Reed,	"	"	E. C. Jones.
Stoner, W. J.	Harrisburg,	"	R. W. Richie.
Stifel, Albert F.	Wheeling,	West Virginia.	S. Mason McCollin.
Straw, J. I.	Philadelphia,	Pennsylvania.	H. D. Straw.
Swearingen, W. W.	Decatur,	Illinois.	Hubbard & Swearingen.
Tatem, Charles H.	Philadelphia,	Pennsylvania,	Alfred Tatem.
Terrell, Thomas,	"	"	P. D. Woodhouse.
Tilton, Francis,	Easton,	"	H. B. Lippincott.
Timmins, Chas. F.	Easton,	"	Jas. G. Wells.
Tomlin, Millard F.	Glassboro,	New Jersey.	D. Hershey.
Townsend, Henry G.	Philadelphia.	Pennsylvania.	Powers & Weightman.
Trimble, Henry,	Chester,	"	S. Mason McCollin.
Truckenmiller, G. L.	Petersburg,	Illinois.	F. Zerman, M.D.
Thorpe, Benjamin,	Woodbury,	New Jersey.	C. Ellis, Son & Co.
Van Cise, Isaac P.	Mount Pleasant,	Iowa.	Van Cise & Lyon.
Voshage, Herman F.	Ashland,	Pennsylvania.	W. Krause.
Walker, Samuel E.	Philadelphia,	"	John T. Walker.
Wallace, James,	"	"	J. M. Maris & Co.
Weigle, Gilbert H.	Mechanicstown,	Maryland.	G. M. Zimmerman, M.D.
Wenerd, J. E.	Philadelphia,	Pennsylvania.	Bean & Stevenson.
Wert, John M.	Sellersville,	"	H. A. Bower.
West, Wm. H.	Philadelphia,	"	Powers & Weightman.
White, W. G.	Lexington,	Kent.	J. B. Morton & Co.
Whitman, J. O.	Canton,	Pennsylvania.	W. W. Whitman.
Wiegner, J. Adam,	Bethlehem,	"	M. M. Selfridge & Co.
Willard, R., Jr.	Haddonfield.	New Jersey.	I. A. Braddock.
Williams, Jno. L.	Philadelphia,	Pennsylvania.	C. A. Weideman.
Williams, R. J. C.	Greenwich,	New Jersey.	J. W. Simpers.
Wills, Charles J.	Philadelphia,	Pennsylvania.	Bullock & Crenshaw.
Wilson, Lewis H.	"	"	D. Wiltberger.
Wittkamp, Henry L. Jr.	Hannover,	Germany.	D. Wittkamp.
Wood, James P.	Harrington,	Delaware.	W. B. Thompson.
Yarnall, Benj. D.	Philadelphia,	Pennsylvania.	A. H. Yarnall & Co.
Yergin, Frank P.	Wooster,	Ohio.	C. W. Seary, M.D.
Young, John K.	Doylestown,	Pennsylvania.	Jas. P. Milnor.
Yost, James L.	Wilkesbarre,	"	Jas. T. Shinn.
Ziegler, J. Walter,	Sunbury,	"	C. Souder, M.D.
Zimmerman, G. A.	Johnstown,	"	Jos. Abel.

THE

AMERICAN JOURNAL OF PHARMACY.

FEBRUARY, 1873.

SYRUP OF PHOSPHATE OF IRON, QUINIA AND STRYCHNIA WITH PHOSPHATE OF AMMONIA.

By Charles D. Polk, M. D.

R.

Ferri sulphatis.	grs. 2625
Sodæ phosphatis,	℥ix
Acidi phosph. glacial.,	℥viii
Acidi nitrici C. P.,	℥vi.
Quinæ sulphatis	grs. 336
Acidi sulphurici dil.,	q. s.
Aquæ ammoniæ concent.,	q.s.
Strychniæ,	grs. xii ss.
Syrupi, q. s. ad	℥xlii.

Dissolve the sulphate of iron in seven ounces of boiling water, and the phosphate of soda in twelve ounces of boiling water; mix them in a precipitating jar and carefully wash the precipitated phosphate of iron; add the phosphoric acid to ℥xx of distilled water, apply gentle heat on a sand-bath until dissolved, then introduce the nitric acid, and continue the application of heat until the solution is reduced to the measure of seventeen ounces, or until the fumes of nitric acid cease to be evolved; dissolve the quiniæ by aid of the dilute sulphuric acid in four ounces of water, and precipitate the alkaloid by aqua ammoniæ slowly added, and carefully wash; dissolve the phosphate of iron, the quinia and also the strychnia in 10 fluid-ounces of the acid by the aid of heat on the sand-bath, the alkaloids being withheld until the iron is dissolved: saturate the remaining seven fluid-ounces of the phosphoric acid with the concentrated liq. ammoniæ, and lastly mix the two solutions in sufficient dense syrup to measure forty-two ounces.

This formula, which is based on the same principle as the ammonio-citrate, ammonio-tartrate and other salts of iron combining a neutral salt with an alkali base, produces a ferric syrup which is scarcely inferior to iron by hydrogen in therapeutical power, and surpasses all other syrups in permanency. I have never known it to precipitate the iron salt or undergo decomposition. It is too expensive and difficult to prepare to supersede Easton's formula, and although very superior to it in chlorosis, neuralgia and some types of anæmia, its use is more circumscribed, and must yield the palm to that splendid preparation as a general tonic. In diseases attended with derangement of the nervous system, I have derived very satisfactory results from this combination, even after I have failed to derive advantage from the syrup of Easton. In broken down cases of gout, rheumatism, scrofula, general cachexia, syphilis and uterine diseases attended with chronic engorgement and relaxation of uterus and appendages, I have often found it to exceed in efficacy my fondest expectations. In 1866, while surgeon in charge of the U. S. Quarantine Hospital, Charleston, S. C., I wished to make this preparation, but could not obtain the phosphoric acid, and was by necessity led to devise a formula by which iron, quinia and strychnia could be formed into a syrup without the aid of free phosphoric acid.

The liquor ferri citratis suggested to me a combination of the same strength in syrup form, independent of the pyrophosphate, in which the phosphate of iron would be held in solution by the aid of citrate of potassa. My first experiments with officinal freshly precipitated phosphate of iron did not give satisfactory results. I next precipitated the phosphate of iron from Monsel's solution by using twelve ounces of the crystals of phosphate of soda to sixteen fluid-ounces of the iron solution, and obtained not a very satisfactory syrup, but some of it, concentrated and dried between plates like the pyrophosphates, furnished very perfect scales of an olive green color and even more soluble than the pyrophosphate scales. By increasing the amount to seventeen ounces and six drachms of the phosphate of soda, I obtained a magma which, with about half the amount of potassa citrate required in the phosphate of the ammonio-citrate, without difficulty, by the assistance of gentle heat, formed a very perfect and permanent syrup of the strength of the liq. ferri citratis, or one hundred and twenty grains of the iron salt to the ounce.

Mr. Rother follows nearly the same process that I have been accustomed to follow, excepting he uses the ammonio citrate, while I have heretofore used the citrate of potassa; he uses the tersulphate, while I have used the subsulphate of iron. I now obtain a mixed syrup of proto- and sesqui-salt of iron, while his is a sesqui-salt. I believe mine to be a better medicine—his a better pharmaceutical product, and applicable to a more general use in forming ferrated syrups and elixirs, and supplying a real desideratum.

Mr. Rother manipulates thus:

R.	Sol. ferric sulph., ...	1 pint.
	Sodium phosphate, ...	17½ oz.
	Sol. of ammonium citrate, . . .	q. s.
	Sugar, ...	24 oz.
	Water sufficient.	

Dissolve the sodium phosphate in 2½ pints of water with the aid of heat, and pour into it the solution of the ferric sulphate with constant stirring. After a short repose transfer the magma to several capacious filters, and wash it with water, stirring it up occasionally until the washings are nearly tasteless; now place the washed magma in a suitable evaporating dish, add six fluid-ounces of solution of ammonium citrate (prepared so that each ounce of the solution shall represent half an ounce of citric acid, the acid being slightly in excess), and apply heat. If the precipitate does not completely dissolve, add a little more solution of ammonio-citrate until the solution becomes perfectly clear by the continuance of a moderate heat, then evaporate it over a sand-bath until reduced to 20 fluid-ounces, add the sugar, and when this is dissolved, strain the syrup through muslin while hot. The product must measure two pints. It will then be identical in iron strength with the officinal solution of ferric citrate; and four minims of it will represent about one grain of dry ferric orthophosphate.*

With the syrup proposed by Mr. Rother, reliable ferrated elixirs of calisaya, gentian or pepsin can be extemporaneously formed.

I regard the following to be superior to any elixir of the same now in market.

Elixir Phosphate of Iron, Quinia and Strychnia.

R. Syr. phosh. of iron with ammonium citrate, . . ℥xvii.

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* Pharmacist, p. 147 (1872).

Sulphate of quinia	grs. lxiv.
Strychnia,	grs. ii.
Curacoa cordial (white),	q.s. ℥xvss.
Essential tinct. orange	ʒiii.
Dilute phosphoric acid,	ʒi.

Dissolve the quinia and strychnia in the Curacoa cordial by aid of the phosphoric acid, add the syrup of the phosphate of iron and lastly the essential tincture of orange. This forms a more reliable elixir than any found in the market; any druggist, with the syrup of the phosphate of iron, could extemporaneously form it as ordered, and thus avoid the cinchonia frauds so extensively practiced with this preparation by some manufacturing chemists; or, if economy be desired, the physician could easily order the cinchonia and the druggist dispense it.

I think Mr. Rother has really made a valuable contribution to pharmacy in this syrup, and believe it worthy of officinal recognition. It is not the iron tonic that the proto-phosphate, in point of energy, falls much below the phosphate with phosphate of ammonia in diseases attended with nervous prostration, yet the difficulty in procuring these of a reliable character is a great offset to their general use. As found in the shops they are mostly unworthy of confidence, while their inestimable value when properly prepared will always maintain a demand for them, although the miserably prepared syrup usually dispensed for Easton's differs as far from the learned Professor's preparation as the attenuated solution of hyponitrous ether as found in the shops differs from the spirit of nitrous ether of the Pharmacopœia.

The syrup of iron with ammonium citrate presents no inducement for fraud, and really resembles in appearance nought else but the syrup of the pyrophosphate, which is an apple green, while the syrup proposed by Mr. Rother is an olive green. As the pyrophosphate is more expensive and even more difficult to prepare, we would have nothing to fear from that direction. It could be prepared by the manufacturing chemists and obtained by the pharmacists of a reliable quality, from which all other ferrated syrups and elixirs containing phosphate of iron could be extemporaneously formed.

In thus recommending Mr. Rother's preparation over mine, I am led by a firm conviction that it is not only better, but fills a purpose heretofore unfilled as a reliable base for other preparations. I refer to my syr. phosph. iron and potash citrate, which is prepared on precisely the same principle as Mr. Rother's, yet scarcely equals it in merit.

By using phosphate of ammonia in a saturated solution, I have succeeded very well in dissolving the magma thrown down from the sesqui-salts of iron by phosphate of soda, the liq. tersulphate perhaps giving the best result; but the subsulphate is very eligible. Any of the alkali salts will dissolve the sesqui-salts of iron if the acid be somewhat in excess, but ammonia possesses greater solvent power than any other, the citrate of ammonia being the best preparation for this purpose. By using the exact chemical equivalent of the phosphate of soda necessary to precipitate one pint of liq. tersulphate of iron (which is about ten ounces), as fine scales as those obtained of the pyrophosphate can be as easily made, and which are really more soluble. The olive green color heretofore alluded to contrasts in a marked degree with the apple green of the pyrophosphate.

The chemical character of the phosphate of iron with ammonio-citrate ($Fe^2O^3,PO^5+10\ HO$), indicates that it contains a larger amount of iron and a smaller amount of phosphoric acid than the pyrophosphate ($2\ Fe^2O^3,\ 3\ PO^5+9\ HO$). This salt of iron is worthy of further investigation.

A DEFENCE OF ELIXIRS, ETC.

By James W. Long.

In the January number of the "Journal of Pharmacy" there appears an article on Elixirs, which is so unjust that I think a few words, however weak, in reply will do no harm.

The writer of the article referred to states that they have "grown into an undeserved popularity, both with physicians and the community at large."

While not having space in this article to quote *ad libitum* from Dr. Polk's essay, still the general tenor of it seems to be that most of these elixirs are "utterly worthless," and that the remedy seems to lie in a universal formula being adopted—"formulas that every retail druggist can follow."

Now, in the first place, it is rather a serious charge to state that many of our very finest manufacturing chemists are placing in the market, endorsed by their label, a line of articles the most of which are utterly worthless.

But take the argument in the abstract, What is an elixir? As I take it to be, a medicinal elixir is a preparation in which a crude material, by an admixture with aromatics, and by a sufficient maceration with a spirit of stronger absorbent powers than itself, together with the addition of syrup, is deprived of certain disagreeable qualities, and rendered more palatable and less nauseating.

The argument, as far as it relates to the retail druggist, seems to me a weak one; for, if he understands his business, he can make his own formulas, and if he does not know enough for this, he should try some other way of making his bread and butter.

As regards a universal menstruum for elixirs, I would respectfully ask, how is this to be done? You cannot treat pepsin with the same adjuvant you can cinchona, nor can you make a clear elixir of cinchona with the same constituents you can pyrophosphate of iron. So how can a universal formula be practicable to use for any elixir?

These elixirs are objected to on account of their novelty, and besides their secrecy. Now, I would ask, what novelty there can be, or what objection can be fairly made, when a pharmacist, or druggist, or chemist, or anything else you wish to call him, says practically to a physician, "Doctor, here is a pleasant preparation of iron--I call it the Elixir of Pyrophosphate of Iron; each tablespoonful contains five grains of the iron;" or, "Here is an elixir, where each tablespoonful contains three grains of pepsin, two grains of bismuth, and one-fourth of a grain of solid extract of nux vomica, in combination"?

If the word of this manufacturer is to be depended on, the physician should be satisfied as to the proportions; if not, then there is no telling whether his subnitrate of bismuth is pure, whether his quinia is not heavily adulterated with cinchonia in some form, or whether his tannin is not some miserable compound, the result of forty acres of woodland, razed promiscuously.

The elixir, as a pharmaceutical preparation, I claim is at once simple, and advantageous to all concerned. Its label tells what it is, of what drugs compounded, and in what proportions.

But here is another argument. Do not these elixirs reach cases that the drugs themselves will not? Take, for instance, an elixir of quinia and taraxacum, made with French brandy, simple syrup, cinnamon water, coriander, caraway, aniseed, orange wine, ground orange-peel, Powers & Weightman's sulphate of quinia, and Parke Davis &

Co.'s fluid extract of taraxacum; out of all these ingredients not only a clear solution may be made, but also a palatable one, of which a tablespoonful is the ordinary dose. Now, take this as a tonic or antiperiodic, is it not better than a dose of quinia or a dose of taraxacum? and, again, is it not better for the patient, especially if a weak, delicate woman, or a child (and for these this class of goods are intended more especially), than to sicken her with the nasty crudities? The patient has the quinia in his or her system, also the taraxacum, together with the brandy and aromatics, and this in one tablespoonful. I only give this as one sample. The patient is able to go about with no more nausea after taking the dose than before, and obtains besides the beneficial effect.

Copaiba can be made into an elixir, and deprived in a great degree of its nauseating qualities; and I shall take great pleasure in sending you a sample and formula as soon as I attain an entirely satisfactory result.

But, Mr. Editor, in conclusion I would like to ask you one thing, and I have no doubt that I am only one of many who would like to have you give your opinion in a full argument on this subject, and that is, By what rule or right, either moral or commercial, have either the profession or the trade to *demand* that these formulas be made public? Is it because it will help the cause of healing the sick? or is it because the intelligence of the whole world is against anything enveloped in secrecy?—that if the owners were not ashamed of it they would make it public?

In answer, I would say that if any doubt rests upon the constituents of these preparations there are the analytical chemists on hand. It is not a question of secrecy but a question of veracity and commercial honor between the physician who asserts that the elixirs of calisaya are not elixirs of calisaya and the manufacturers who assert that they are.

The reason why these formulas are not made public, I think, is this: One who takes a pride in his profession, and who is eternally devising some new way of making this or that, will in course of time stumble upon or find out something worth knowing. Even if this individual may not have a superlative education, still he may have perception enough to find what will render quinia less bitter, aloes, jalap and company less nauseating. He puts his idea into practical operation, and just as he is making a few dollars (the result of months and perhaps years of experience, thinking and toil), the profession step in and, like Turpin modified, demand, "Your formula or your professional credit. We don't care if you do tell us that there is so much of this and that in it, we want to know *how* you do it, and besides we want it published in the journals."

Sequel. The formula is published in the journals, some rich chemical pirate sees it, thinks it is a good thing, gets it for nothing, and goes into it wholesale and retail, with gilt labels, plenty of advertisements, and lots of sale. The poor fellow who first got it up loses all except his self-respect, and for nothing else except to satisfy public opinion. Is this just?

Now I would suggest, with all due deference, a remedy. Let there be attached to the Philadelphia College of Pharmacy, with a channel of publicity through the "Journal," a library of formulas, these formulas to be acted upon by two or three professors of the College. Let them be divided into officinal (when accepted as worthy of that name), and unofficinal, with a subdivision of this class, according to merit, into A, B, C, D. As a reward to the inventor, let the College confer a diploma conveying a degree commensurate with the value of the formula, and attach to it, to pay the expenses, a fee of five dollars, upon the payment of which the inventor would be entitled to his diploma. This money would be willingly paid, and would show conclusively that he was the originator, no matter what thief would steal it after it became public.

Then, to crown the whole thing, with your December number issue a supplement (with a sufficient additional charge) of all these formulæ, classified, with the authors' names, etc.

This would change entirely the aspect of affairs, and the College would take the position it ought to take, *i. e.*, the intelligence and brains of the profession, standing on the dry, safe ground of experience, reaching out a helping, kindly hand to its children who are struggling in the mire, and seeking recognition from respectability.

Longwood, *Mich.*, *Jan.* 13, 1873.

Remarks by the Editor.—It is scarcely necessary to state here, that the position taken by our correspondent in this question is not our own. We hold that no pharmacist has a right to secret formulas for any medicinal preparation, regarding this as an ethical question which has long since been settled for the medical profession, the members of which are in honor bound not to have any secrecy in regard to their mode of treatment or to the remedies employed. Whether or not the use by physicians of preparations made by secret formulas is tantamount to a violation of medical ethics, in letter or in spirit, is not for us to determine. But we know that if physicians and pharmacists had always acted upon the principles advocated by our correspondent, the days of antiquity would be still upon us, when the meagre knowledge was communicated from father to son, or from teacher to particularly favored pupils, when there was no pharmacy, and when the medicine man was merely a sorcerer and magician. If the numerous pharmacists and physicians, who have successfully labored to establish chemistry as an independent science, had kept their discoveries secret, our correspondent would now not be in the position of handling morphia, quinia, strychnia, or any other of the active principles of medicinal drugs, and chemical analysis, to which he refers, would be totally unknown.

The suggestion of our correspondent, to reward the inventor of a new formula with a degree commensurate with the value of the same, is novel merely in these days of supposed education and knowledge, and we doubt not would receive the hearty approval of all inventors of golden pills, expectorants, cures for consumption, invigorating bitters, and of the entire host of quack nostrums. Happily, the days of the middle ages are passed, when the maker of a renowned nostrum would be rewarded by those in authority with money and perhaps with titles for divulging its composition.

The action of the American Pharmaceutical Association at its last meeting, and of several local associations, in regard to elixirs and similar semi-nostrums, is evidence that there is an honest desire to suppress this nuisance of having in pharmacies a multitude of different preparations bearing the same name; and this movement will be crowned with success, if it meets with the favorable consideration of the medical profession.

For other points on the elixir question, we refer our readers to the Proceedings of the American Pharmaceutical Association for 1872.

PATENT MEDICINES AND PRIVATE FORMULAS.

By Chas. G. Polk, M. D.

Under this caption Mr. James W. Long makes some very excellent points in regard to one of the greatest curses to society at the present day, in the December number of the "Journal of Pharmacy." But, while "the American people are fond of being humbugged," as Barnum most happily said, and are readily gulled by any and every variety of miserably trashy and forged certificates to swallow the abominable mixtures, syrups and pills concocted by an ignorant and heartless set of villains, who traffic in human life as though it be as merchantable as a piece of pork or a head of cabbage, the sister professions medicine and pharmacy have no right, on the one hand, to manifest indifference to this great and growing evil, or encourage it, on the other.

The medical profession display too much lethargy, and treat consumption of those vile nostrums by society as a matter which concerns them not.

It would also seem that interest, which is a powerful lever in human affairs, lies on the side of their consumption. The injuries they inflict oft give splendid opportunities for big, fat doctors' bills; although I am sure that the number who view the subject from that standpoint is very small.

Still the apathy they manifest is almost criminal, and permits the evil which a more vigorous action on their part might modify and lessen if it did not suppress.

With the druggist it is different; he regards the sale of those health-destroying agents as a part of his legitimate business. While he would not sell a glass of whiskey where he supposed there was chance of intoxication from it, he will unhesitatingly hand a bottle of a poisonous syrup to a young mother which may soothe her babe into eternal rest, or a bottle of almost as dangerous "expectorant" to the victim of pulmonary consumption, which will prove an effectual ally to this sure destroyer of human life. The victim of this fatal disease requires sustaining treatment; the impaired digestion, assimilation and sanguification needs aid and support. But do they receive it from the squill, senega and tartar emetic which compose the most popular quack expectorant of the day, and which is advertised as almost a specific for this disease? Alas! no; a combination more fatal cannot be found; they sap the very foundation of these functions, antagonize with the vital forces, and hasten the development of tubercles. Recently I heard an experienced physician say, "that the evil from this 'expectorant' counterbalanced all the good from cod-liver oil, that it annually hastened thousands into an untimely grave, and by undermining the general health, no doubt in many cases where there was a strong predisposition, with irritation already existing on the lungs, it awoke this predisposition into activity and developed the disease."

Men may thus traffic in human life, rear temples of human blood, and grow rich on the wages of human deception; but, as sure as there is justice in Heaven, so sure will Divine retribution overtake those legalized murderers.

I would, however, be doing a great injustice to a very large portion of educated pharmacists to intimate that they entertained any sympathy for this nefarious business. They recognize the evil, deplore it, and find the remedy beyond their reach. Circumstances compel them to violate their strict sense of right—circumstances they cannot escape without yielding the business to men void of principle, who, incompetent for the duties of legitimate trade, would become the ready aiders and abettors of quacks. Then, however wrong in the abstract the selling of patent medicines may appear, there are but few druggists so situated as to be able to exclude them from their business. "What cannot be remedied must be endured," but it nevertheless is the duty to discourage, as far as possible, the use of patent medicines and proprietary formulas. Proper State legislation would greatly modify the evil, and this remedy is badly needed. The correct formula for each should be furnished, and a competent board appointed to determine its merit, with authority to exclude all possessed of objectionable constituents, or liable under ordinary circumstances to do harm. Let us have such legislation. No legal enactment is worse needed—none could do more good.

Hoping that this subject may receive the attention due it from the pharmacist and physician, I will not dwell longer on this disagreeable subject.

GRANULATED EFFERVESCING VICHY SALT.

By Chas. L. Mitchell.

For the past few years the attention of pharmacists has been drawn to a class of preparations known by the name of Gran. Eff. Powders. They are principally of English manufacture, although some few are made in this country, and are intended to be used as substitutes for the mineral waters so much in vogue, and to possess the advantages of small bulk and stability. The Gran. Eff. Vichy Salt, or Vichy Powder, is the most unreliable of these, generally becoming discolored after being exposed to the atmosphere for a short time. By the following formula it can be made so as to be free from this objection and keep perfectly white:

℞.	Dry Bicarb. Soda,	℥vij,
	“ Powd. Sugar,	℥xiijss,
	“ Precip. Carb. Lime,	grs. 252,
	“ Carb. Magnesia,	“ 64,
	“ Carb. Iron Sacch.,	“ 60,
	“ Chloride Sodium,	℥ij,
	“ Sulphate Soda,	℥ij,
	Powd. Citric Acid,	℥x.

Mix all the articles well together; powder, and pass several times through a No. 60 sieve. Then moisten the powder with f℥iijss stronger alcohol, to render it slightly damp and adherent, and then granulate through a No. 8 sieve. Dry the granules at a temperature not exceeding 120° Fah., and sift through No. 8 sieve. Bottle and keep dry.

A sample of Vichy salt prepared in this manner remained perfectly white after being exposed for over two months.

SULPHOVINATE OF SODA.

By Charles Rice.

Having prepared this salt for some time, and having tried several methods for obtaining it, I can recommend the following, as yielding a good product, at a moderate price:

Take of alcohol (sp. gr. 0·815), sulphuric acid (sp. gr. 1·830), each 64 fl. oz. Add the acid to the alcohol, contained in a large flask, in portions, at short intervals. At first, the temperature of the mixture rapidly rises to 212° F., and violent ebullition takes place at each successive addition of acid, but this gradually ceases as the specific gravity of the mixture increases, and the last portions of the acid may be added quite rapidly. Cover it well, and allow it to stand for two or three days. The mixture of alcohol and acid should not be raised to the boiling point, since the yield of sulphovinic acid is thereby considerably diminished, while that of oil of wine, ether, etc., is proportionally increased. Pour the mixture slowly, while stirring, into five times its bulk of water, and saturate the acid liquid with carbonate of lime. Strain the liquid, wash the precipitated sulphate of lime, and add the washings to the filtrate, which now contains sulphovinate of lime. Add to the latter a solution of carbonate of soda, until it just ceases to give a precipitate. Instead of carbonate of soda, I have also used oxalate of soda, which, although requiring considerably more water for solution, and consequently a longer time for the final evaporation, has this advantage, that it effectually removes the whole of the lime salts, thus making filtration during evaporation unnecessary. Filter the liquid through filtering paper free from iron, to remove the precipitated carbonate of lime; wash the latter, and evaporate the filtrate until it measures about 70 fl. oz. Filter again from a small quantity of separated sulphate and carbonate of lime, and evaporate until a pellicle forms. Then set it aside for a few days, and remove the crystals. It is very difficult to obtain more than one or perhaps two crops of well-defined crystals; the last mother-liquors deposit a number of hemispherical, knob-like crystalline masses, of a pasty consistence and exceedingly difficult to drain. I now prefer to evaporate the liquid at once to a syrupy consistence, and then, under constant stirring, to evaporate to dryness.

The product is a white, granular salt, of a faint ethereal odor, and a cooling, somewhat aromatic taste; it is very deliquescent, soluble in 0·7 parts of water, at 60° F., also soluble in alcohol, with which it is capable of forming a crystalline compound. When pure, BaCl solution should throw down no precipitate, or at least produce only slight cloudiness.

The quantity of sulphovinic acid produced depends upon the specific gravity of the materials, and on the temperature employed; a decrease of the specific gravity and an increase of the temperature diminishing the yield. The liquid obtained by mixing alcohol and sulphuric acid of the above indicated densities, precautions having been taken to guard against loss, was found, after being cooled down to the original temperature, to have shrunk 3·5 per cent. in volume. The amount of uncombined sulphuric acid was determined volumetrically, with the following results:

Original amount of sulphuric acid taken, .	3458·90 gm.
Containing of dry SO_3, . .	2594·18 gm.
Total amount of free SO_3 (dry), found in the mixture, mean of three experiments,	1409·86 gm., or 54·3 p. c.
Hence total amount of SO_3 in combination,	1184·32 gm., or 45·7 p. c.

New York, Jan. 14, 1873.

YIELD OF MUSK FROM BAGS.

Editor of "American Journal of Pharmacy":

In the December number, page 565, the table of musk yield is of interest, and, having some facts, I will communicate them for publication:

Caddy.	Pods.	Original pods.	Musk.	Empty pods.
No. 1	24	20·75 oz.	7·125 oz.	13·625 oz. avoirdupois.
No. 2	20	20·75 "	6·500 "	14·25 " "
No. 3	29	24·00 "	7·000 "	17·00 " "
Total,	73	65·50 "	20·625 "	44·875 " "

Average for 1 pod, 392·5 grains; musk, 123·6 grains.

Respectfully, Thos. J. Covell.

Jersey City, N. J., Jan. 9, 1873.

ON CALABRIAN MANNA.*

By Daniel Hanbury, F.R.S., F.L.S., F.C.S.

Manna, it is stated in the *British Pharmacopœia* (1867), is a concrete saccharine exudation from the stem of *Fraxinus Ornus*, L., and *F. rotundifolia*, D. C., which trees are cultivated for the purpose of yielding it chiefly in Calabria and Sicily. Of the method of collecting manna in Sicily, there are tolerably exact accounts; and the manna plantations of that island have also been fully described.†

Having never heard of manna plantations in Calabria, nor seen any modern account of manna-gathering in that region. I wrote in 1868 to my friend Colonel Yule, of Palermo, to inquire if he could furnish me with any particulars. Colonel Yule being unable to answer my questions, communicated them to Mr. Grant, British Consul at Brindisi, who, in his turn, sought to obtain the desired information from some of the British vice-consuls (Italians) in Calabria. But except the statement that the site of its production was the province of Calabria Citra, and especially the territory of Rossano, on the shores of the Gulf of Taranto, I was unable to gain any very precise knowledge on the subject.

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* Read before a meeting of the British Pharmaceutical Conference at Brighton, August 14th, 1872. Reprint, communicated by the Author.

† See in particular a paper by Dr. Clegborn, on the Botany and Agriculture of Malta and Sicily.—*Transactions of the Botanical Society of Edinburgh*, vol. x, 1868—69.

Here I may remind you of an investigation into the history of manna which I made in 1869,* and that one conclusion to which it led was this,—that manna was collected in Calabria for hundreds of years prior to it being a commercial product of Sicily, and that the earliest accounts of manna-gathering in the latter country, only date from the second half of the 17th century.

It will be well now to consider some remarks that have been made by travellers regarding manna as an object of industry in Calabria. Though they are only passing allusions, they suffice to show that this drug was at least a well-recognized production of the country in question.

Baron Riedesel, a German nobleman who made an interesting journey through Sicily and Southern Italy about a century ago, and whose travels have been published both in German and English,† travelled from Cotrone to Coriati, small towns on the eastern coast of Calabria. Of the latter he remarks, that "it is a bishopric of Calabria, . . . round which they collect the best manna and in the greatest quantity. The owners of the manna-trees are obliged to sell their manna to the king for a fixed price: the better sort, or what is commonly called *in cannole*, for 2 *carlini* [8*d.*], and the worse, or *in frasca*, for 8 *grani* [3¼*d.*] the pound. These revenues are farmed for 32,000 ducats [£5533] per annum. The greatest quantity is collected about Cariati and Strongoli."

About 20 miles west of Cariati, is the small town of Corigliano, where, says the Baron, they also collect "*vast quantities of manna.*"

Half a century after this traveller, an Englishman, the Hon. Richard Keppel Craven, made a journey through Calabria, visiting among other places Cariati, the vicinity of which was at that period still famous for manna. The following is from his published journal:‡—"The mountains near Cariati abound with game, and the forests, which richly clothe their summits, furnish quantities of that species of ash which produces the manna, a considerable branch of commerce in this province, and more particularly esteemed from this district."

The foregoing notices, scanty as they are, are yet of interest, as coming from eye-witnesses, or at least from inquiries on the spot. Let me now add a few observations of my own, the result of a short journey during the present year, through a portion of the province of Calabria Citra.

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* Historical Notes on Manna.—*Pharm. Journ.*, xi (1870), 326.

† *Travels through Sicily and that part of Italy formerly called Magna Græcia*, translated from the German by J. R. Forster, F. R. S., London, 1773.

‡ *Tour through the Southern Provinces of the Kingdom of Naples*, London, 1821.

First, when at Florence, I inquired for *Calabrian Manna*, addressing myself to the principal firm of wholesale druggists in that city. The answer I got was that Calabrian manna was an article they never purchased; but that if I wished to see the drug it was possible, as it so happened that a small keg of it had been sent to them for disposal. Of this offer I availed myself. I found to my surprise that the drug was a soft viscid mass containing small tears, mixed with fragments of leaves, sticks and dirt,—in fact, I regarded it of such very bad quality, that I declined a sample which was kindly offered me. I thought also that if I travelled into Calabria I should easily obtain much better, as well as all desired particulars respecting the trade in manna, of which, according to the latest edition (1868) of Murray's *Handbook for Southern Italy*, Calabria Citra is the "principal seat." I accordingly proceeded southward.

Around Florence, I may remark, and especially between that city and Pisa, the manna ash (*Fraxinus Ornus*, L.) is frequent, being one of the small low trees grown as a support for the vine. Except these examples, I hardly saw the tree until I reached the shores of the Gulf of Taranto, when I observed some very tall specimens in the strip of humid forest a little south of Policoro.

Journeying onward I arrived at Rossano, a town in Calabria Citra, of about 10,000 inhabitants, situated three or four miles from the sea. Here I learnt that the manna trees, which are called *Ornelli*, grow on some of the adjacent mountains,—that they are of large size, and are *not* cultivated,—that manna is obtained from them by incisions in the trunk made by the peasants in July and August,—that the manna got is mostly of the soft or fatty kind, very little of it being obtained in long white pieces or *cannoli*, and in some seasons none at all.

The collecting of manna about Rossano is at present, I was assured, a very small and insignificant branch of industry. Few persons among those from whom I sought information knew anything of the gathering of manna, or even of the existence of the manna-ash in the neighborhood. One gentleman, a principal inhabitant of the town, and holding an official position, to whom I had a letter of introduction, assured me that the incising of the stems of the trees had been for the last four or five years forbidden by the Government; and the same statement was made by others. It is plain, however, that manna *is* still gathered about Rossano, though the amount is quite insignificant, for I obtained from a pharmacien in the town a specimen, being part of some he had purchased from a peasant the previous season.

Hoping for more information, and that I might at least obtain better specimens, I went to Corigliano, a small town, the mountains around which produce, according to Murray's *Handbook*, "the finest manna in Calabria,"—a fact without doubt perfectly true a century ago. Here I was told that no manna is now brought in for sale, the collection having entirely ceased. I called on five pharmaciens in the town: three of them had in stock no manna whatever; the fourth had some which he had purchased in Naples; but the fifth (Signor Giuseppe Guidi) had a box containing a pound or two of manna of the country, of which he kindly gave me a sample. He told me that it was old, none being now collected. This manna is a moist, semifluid, saccharine mass, of a dirty yellowish grey.

On the 5th of May, 1872, I reached Cosenza, the capital of the province, situated at the head of the valley of the Crati, in passing through which I observed a few trees of *Ornus*. The locality was anciently renowned for manna. Here I repeated my inquiries in several pharmacies, but in vain. At length I found one, the proprietor of which showed me some soft manna, which he said had been got near Cotrone. I discovered also in another pharmacie manna of two qualities, *scelta* and *in pasta*, both of which the pharmacien stated he had bought of peasants who had collected it at Rossano. The collecting of manna about Cosenza was quite ignored by most of the persons whom I asked for information. Those who had any acquaintance with the drug declared it was no longer an object of industry in that part of Calabria. One pharmacien asserted that the collection of manna had been prohibited for the last six or seven years.

The course of my journey having led me to Messina, I had the pleasure of making the acquaintance of Mr. Robert Sanderson, a merchant of that city of long standing, whose business in Italian produce includes the shipment of manna. On asking this gentleman about Calabrian manna, he informed me he was ignorant of such a commodity; and on my showing him some of the drug in the soft form in which I had procured it at Cosenza, he expressed much surprise, and declared it to be unlike any Sicilian manna he had seen.

No specimen of Calabrian manna was contributed to the Italian Exhibition held at Florence in 1861; but there appear to have been three samples from Rogliano in the London Exhibition of the following year.*

From what I have already stated, the conclusion is I think irresistible.—that Calabrian manna as an article of commerce has practically ceased to exist, and that the collection of manna in that part of Italy is on the verge of extinction.

I regret that when at Rossano I was unable to visit the woods of *Ornus* which undoubtedly exist in that vicinity. But the habits of the Calabrian peasantry are such that it is impossible for travellers to quit the high-roads without personal danger.

The better to inform myself of manna industry, and especially that I might become well acquainted with the tree, I afterwards paid a visit to the manna plantations at Capaci near Palermo. I also inspected the trees which are cultivated at the *Instituto Agrario Castelnuovo* near that city,† and in the park of La Favorita. But as the time of my visit (May 16—22) was not that for collecting the drug, I have no details of particular novelty to communicate.

Respecting the manna-ash itself, however, I wish to say a few words. It has often been stated, as in the *British Pharmacopœia* (for which in this case I presume the *Prodromus* of De Candolle is the authority), that there are two species of manna-ash, namely, *Fraxinus Ornus* and *F. rotundifolia*. Many modern writers on pharmacology admit but a single species, *F. Ornus*, L., of which *F. rotundifolia* is stated to be a cultivated variety peculiar to Calabria and Sicily, and propagated by grafting.

I do not think either statement satisfactory. *F. Ornus* is very variable even in its wild state, and in the same locality.‡ As to the tree which is cultivated in Sicily, and of which I have examined specimens from all parts of the island,* it likewise presents great variations, but no special form that can be singled out as deserving the name of *rotundifolia*, or even that can be recognized as *par excellence* a cultivated variety. It is true that the tree in some manna plantations is occasionally grafted; certain trees yielding a poor supply of saccharine matter being thus replaced by others of a more productive nature. But I observed no grafting at Capaci where the trees are grown like coppice-oak in England, and where such a plan of treatment would therefore be hardly worth the trouble.

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* They were contributed by Signor Giovanni Morelli of Rogliano, Calabria.

† A most interesting agricultural college, founded by private munificence, where twenty-two lads are studying scientific and practical husbandry under the able directorship of Professor Inzenga.

‡ As for instance at Eza near Nice where the tree is plentiful, and where I have gathered specimens with the leaflets *almost orbicular*, and others with leaflets *narrowly lanceolate*.

[The paper was illustrated by several samples of Calabrian manna procured at Rossano, Corigliano and Cosenza, and by a large suite of botanical specimens of *Fraxinus Ornus*, L., and a stem of the latter showing the incisions for manna.]

SPIRIT OF NITROUS ETHER A SUPPOSED TEST FOR SOME ALKALOIDS.

By John M. Maisch.

About a year ago a friend wrote to me that he had observed some reactions of quinia and cinchonia, which might perhaps be valuable for the detection of these and other alkaloids. The reaction was described as follows:

> "Quinia or cinchonia, to which some sweet spirit of nitre and a few drops of ammonia is added, produces with a little muriated tincture of iron a red color similar to that formed with sulphocyanide of potassium and iron. Morphia treated in the same way produces a beautiful green color. Most of the other alkaloids are not affected."

On repeating the experiments with commercial spirit of nitrous ether, which had been exposed to the atmosphere for a considerable time, a quinia solution assumed the red color described, but morphia solution became purple instead of green. On the addition of a few drops of muriatic acid, the red quinia solution became colorless, while the morphia solution assumed a blue color, the characteristic reaction of morphia and ferric chloride, and turned green on the further addition of tincture of iron, as might have been expected from mixing a yellow and blue liquid which do not chemically react upon each other.

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* Many of them courteously presented to me by Professor Todaro, of the Botanical Garden, Palermo.

This observation at once suggested the probability that the spirit used for these experiments contained acetic acid, which was proven by the deep red color produced with it after neutralization with ammonia, by a ferric salt, the color disappearing on the addition of acids. Spirit of nitrous ether, however, which had been recently prepared by Redwood's process, was entirely free from acetic acid and did not produce the red color with salts of iron.

It is well known that by the action of nitric acid upon alcohol, nitrous, acetic and formic ethers are formed, in variable proportions, depending chiefly on the strength of the materials employed, and on the temperature at which the distillation took place. The two last-named ethers do not affect the color of ferric chloride until by exposure or by the action of caustic alkalies acetic and formic acids have been liberated from their ethylic combination, when, after neutralization, the peculiar red color will appear with ferric chloride, more or less modified by the smaller or larger excess of the iron salt, or by the presence of a compound striking with it a peculiar color.

Old spirit of nitrous ether contains also free nitrous or nitric acid, as may be seen by the blackish-brown color produced with ferrous salts on the addition of hydrochloric or sulphuric acid.

OINTMENTS OF OXIDE OF ZINC, AND OF MERCURY.

By Julius Kalish.

Ungt. Zinci Oxidi.—In the last number of the "American Journal of Pharmacy," a process is given by Mr. Bolton, which, while it will give a very smooth ointment, is too expensive, requiring too much time and labor in its execution. It consists essentially of grinding the oxide in the fat.

I have prepared this ointment in the following way, which accomplishes the same results by far less labor, the great desideratum in all formulas:

Rub the zinc oxide in a wedgwood or unglazed porcelain mortar, with *considerable pressure*, until as finely divided as possible; now add gradually, *with constant trituration and pressure*, sufficient sweet oil of almonds to form a smooth paste; then add a little lard, mix thoroughly; then add balance.

This process will answer for all ointments containing insoluble substances, and for all ordinary quantities. I have always succeeded with it in making smooth, uniform ointments.

While on the subject of ointments, I will say a few words about

Ungt. Hydrarg. Oxidi Rubri.—Every pharmacist has heard, with dismay, on some very busy day, a call for ten cents' worth of this bête noir. A short time ago I saw in one of our journals the following formula:

℞. Olei Ricini, ... ʒvj,
Ceræ albæ, ... ʒij,
Hydrarg. Oxidi Rubri, . . . ʒj.
M. ft. ungt. l. a.

This makes an ointment of good consistency, and keeps. I have some, made six months ago, which shows no signs of change, being as bright as when first made. But it has the objection, when freshly prepared, of having, in a considerable degree, the unpleasant odor of castor oil, although this is partially lost in time; but, what is more objectionable, it has the irritating properties of the oil when applied to delicate parts, as the eyelids. To obviate this I substituted olive oil for the castor oil, but not with satisfactory results; still I am not able to state positively that olive oil, entirely free from rancidity, will deoxidize the mercury, as I have some doubts about the oil I used. I then tried sweet oil of almonds; with this I have an ointment, made ten weeks ago, which has as yet shown no signs of change. I had previously tried lard, purified by different methods, also adding a few drops liq. potassæ, as remarked in the U. S. Dispensatory; but in each case there was a reduction of the oxide.

New York, Jan. 16, 1873.

Note.—Ointment of oxide of mercury, made with yellow wax as directed by the new Pharmacopœia, will keep unaltered for several weeks.—Ed. Am. Journ. Pharm.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Resin of guaiacum and its constituents have been studied by E. Schær with the view of ascertaining which principle has the property of striking the well known blue coloration with oxidizing agents. The action of simple solvents upon the crude resin cannot clear up this question, since some constituents, though insoluble in a simple solvent when chemically pure, are dissolved to a greater or smaller extent through the influence of other constituents. His observations lead him to the conclusion that this principle is guaiaconic acid, which is present in the crude resin to the amount of about 70 per cent., while guaiaresinic acid, of which the resin contains 10 per cent., is not colored by oxidizing agents. The blue color produced with pure guaiaconic acid is of longer duration if the oxidizing agents, after parting with oxygen, yield bases or indifferent compounds, like permanganic and ferric acids, the peroxides of lead, manganium, silver, &c.; and it is readily changing, if the oxidizing agents produce acids, as for instance chlorine, bromine, iodine, ferric and auric chlorides, &c. A molecular change in the constitution of this acid is produced by light, particularly by the direct sunlight, even if oxygen is carefully excluded, so that it loses its property of turning blue with oxidizers. This shows the importance of carefully preserving a solution of guaiac resin, to be used as reagent, from the influence of light and air. The resin prepared from the wood by alcohol under exclusion of light and air is more sensitive, and yields a blue color of greater intensity and purity than the commercial resin. The green coloration assumed by the wood and resin on exposure is due to the presence of yellow coloring matter in addition to guaiaconic acid.—*Wittstein's Viert. Schr.*, 1873, 68–74, *from Schweiz. Wochenschr.*

Phosphorescence of orris root.—X. Landerer has observed this phenomenon repeatedly on digging at night the rhizome of Iris florentina; it occurred in the form of luminous spots.—*Ibid.*, 76.

Iodal $C_4HI_3O_2$, discovered by Aimé more than 30 years ago, which is obtained by acting upon iodine with a mixture of absolute alcohol and concentrated nitric acid, is recommended by Guyot as an excellent anæsthetic, in doses of one to two and a half grams. It is a colorless oily liquid, resembling chloral in odor; boils at 25° C., and is decomposed by alkalies into iodoform and formic acid.—*Ibid.*, 95, *from Journ. de Chim. Méd.*

Desiccation of egg albumen.—Stan. Martin recommends the following as the most expeditious method: in an airy room, well protected from dust, a square frame is placed upon two chairs or suspended by cord, and a piece of linen or muslin stretched over it, on which a layer of egg albumen is spread. When this is dry, a second, third and even fourth layer is spread on, until scales several millimeters in thickness are obtained. In drying, the albumen detaches itself from the fabric, and to hasten the desiccation, the whole may be exposed to the sun under a cover of unglazed black material.—*Jour. de Pharm. et de Chim.*, *Dec.*, 429.

To hide the bitter taste of some medicines, like quinia, colocynth, aloes, quassia, &c., L'Union pharmaceutique, 1872, Dec., proposes to keep some liquorice in the mouth after taking such substances, when the bitter taste will instantly disappear.* Liquorice merely masks, it does not destroy the bitter taste; its action is analogous to that of bitter almonds upon musk, and of anise upon valerian. When musk is triturated with some distilled bitter almond water the musk odor disappears, but gradually reappears as the oil of bitter almonds evaporates.

A new falsification of ammoniac is reported by Ch. Ménière, who observed globular pieces of translucent quartz varying in color between white, yellow, orange and reddish, imbedded in the gum resin, so as to give it the appearance of a handsome article, and calculated to deceive unless closely inspected.—*Ibid.*, p. 355.

Solubility of quinia salts in water and glycerin.—Schlagdenhauffen has instituted a series of experiments on this subject, with the view of obtaining a solution sufficiently concentrated for subcutaneous injection; one part of some salts requires for solution at the temperature stated, the following parts of

	Distilled water.						Glycerin.					
Degrees C.	100	50	40	15	12	0	100	65	40	35	10	0
Sulphate,	25	120	—	—	—	300	4	10	20	—	—	40
Hydrochlorate,	4	—	—	—	22	24	2 to 3 parts.					
Butyrate,	13	—	55	105	—	130	4	—	—	7	15	17

Some of the glycerin solutions when rapidly cooled to 0° C., remain clear for a longer time than by slow cooling to 15° C.; this supersaturation affords a means for using the solutions hypodermically. When cooled slowly to 15° C., glycerin solutions containing

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* Liquorice has been long in use for masking the bitter and also the nauseous saline taste of certain medicines.—Editor Amer. Jour. Pharm.

8	per cent.	of	sulphate	of quinia	may be	employed	for	1 day.
25	"	"	hyposulphite	"	"	"	"	4 days.
33	"	"	hydrochlorate	"	"	"	"	16 hours.
50	"	"	formiate	"	"	"	"	8 "
25	"	"	acetate	"	"	"	"	10 "
50	"	"	sulphovinate	"	"	"	"	19 "
50	"	"	lactate	"	"	"	"	1 day.
33	"	"	tannate	"	"	"	"	3 days.

If these solutions are kept at a temperature of 30° C. they remain limped for 8 to 15 days.—*Ibid.*, 359–364.

To detect an admixture of alcohol in volatile oils, R. Bœttger recommends to agitate the suspected volatile oil in a graduated tube, with an equal bulk of pure glycerin, spec. gravity 1·25, which is readily soluble in alcohol, but does not combine with the volatile oil. The diminution in volume of the latter indicates the amount of the admixture.—*Chem. Centr. Bl.*, 1872, No. 47, *from Jahresb. d. phys. Ver. zu Frankfurt.*

Constituents of sweet almonds.—Professor Ludwig communicates the results of an investigation made in the laboratory at Jena by E. Scheitz, in 1865, who found besides fixed oil, albuminous compounds, emulsin and cellulose, also glucose, a chromogen glucoside (yellow, becoming cherry red with alkalies), small quantities of amygdalin and tannin which reacts green with iron and is doubtless contained in the outer integuments.—*Archiv d. Pharm.*, 1872, *Nov.*, 420–423.

Estimation of camphor in alcoholic liquids.—Hager distils the liquid in a water-bath, the distilled alcohol containing the greater part of the camphor, is mixed with an equal volume of water and agitated with one-tenth volume of bisulphide of carbon. After separation, a portion of the hydroalcoholic liquid is returned to the flask and redistilled from a glycerin bath at 110° C. The distillate contains all the camphor, is added to remaining mixture and bisulphide of carbon, mixed with more water and twice agitated with carbon bisulphide. The latter solvent has taken up all the camphor and volatile oils if present. This solution is evaporated spontaneously in a tared glass dish with straight sides at an atmospheric temperature not exceeding 15° C., the temperature of the dish being lowered by the evaporation to 5 to 10°, preventing the evaporation of the camphor almost completely, while the volatile oils evaporate freely. Should a larger quantity of volatile oils be present, the residue must be again treated with carbon bisulphide in the same manner, until a solid residue is left, when it is immediately weighed. In the presence of oil of lavender, and particularly of rosemary, the camphor is obtained in prisms.—*Pharm. Centr. Halle*, 1872, No. 50.

Indelible writing ink is obtained by adding to ordinary ink some ferrocyanide of potassium. The use of acids for removing the ink, causes the formation of Prussian blue.—*Pharm. Zeitung*, 1872, No. 104.

ON A NEW ANÆSTHETIC OBTAINED FROM CHLORIDE OF CARBON.*

By MM. Hardy and Dumontpalier.

Chloride of carbon unites in definite proportions with alcohol, and furnishes a liquid which boils at a fixed temperature, and possesses strong anæsthetic properties. To obtain it, 30·8 parts of chloride of carbon are mixed with 4·6 parts of alcohol, the mixture distilled, and the portion collected which boils at 66° C.

It is a colorless, transparent, mobile liquid, of an agreeable odor, and a density of 1·44 at 13° C. and at a pressure of 0·755. Its boiling point, 66° C., is below that of both its constituents, chloride of carbon boiling at 77° and alcohol at 78·5°. It is unalterable in the air, volatilizes slowly and burns with difficulty, the flame having a green margin. It is decomposed by water, sulphuric and hydrochloric acids, chloride of carbon being deposited. Aided by a moderate heat, nitric acid attacks it briskly, with the disengagement of red fumes and the separation of chloride of carbon, while the supernatant liquid yields oxalic acid.

Analysis leads to the formula $2CCl_4,C_2H_6O$. Its density, however, which in two experiments was found to be 4·2 and 4·1, does not correspond with the theoretical density required by this formula. Whether it be regarded as a compound, or as a mixture, it is curious that it has a fixed boiling point, and all the physical appearances of a body of definite composition. Other analogous cases are known which have not yet been interpreted.

It acts as an anæsthetic, for which purpose its ethereal odor and its low boiling point render its application easy. Experiments were made with a dog of medium size; the mouth was kept closed, the inhalation took place from a sponge through the nostrils so that a certain quantity of air was likewise allowed to enter; 15 grms., in three portions, were sufficient. Comparative experiments, made upon the same dog, in intervals of several days, with chloride of carbon and with chloroform, in uniform doses of 15 grams, lead the authors to the conclusion that the last two liquids act with greater intensity than the new substance, which, however, should be used with the greatest care in experimenting upon human subjects.—*Bull. Therap.*

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* Translated from Journal de Pharmacie et de Chimie, 1872, Dec.

DISPENSING NOTE ON CHLORAL HYDRATE.*

By J. G. Plumer.

There have been many suggestions put forward respecting the dispensing and dose of chloral hydrate. It was first, I believe, introduced on the Continent, and has been given there in doses consisting of only five grains, principally combined with simple syrup and distilled water. But in England it is given in doses ranging from five to fifteen or twenty grains, either in the form of draught, syrup or mixture. It is generally prescribed in the form of a syrup; tolu and other flavoring adjuncts being employed to disguise the taste. In my opinion the Syrupus Flor. Aurantii, P.B., is the best form of combination with which it can be used. It seems most effectually to avoid the sickly feeling created by the chloral hydrate; I venture to suggest the employment of a concentrated solution which may prove convenient. I find that one fluid drachm of solution made with distilled water may contain so large a quantity as one drachm by weight of the chloral hydrate. I therefore use this formula:—

℞.
Chloral. Hydrat. . . . ℥ j.
Aquæ destillat. . . . q. s. ad fl. ℥ j.

About five drachms of aqua destillata are found necessary, and the result is satisfactory. Hence in a prescription ordering ʒ ij chloral hydrate, two drachms of the concentrated solution will be wanted. The convenient applications of this liquor will be obvious. Syrup of chloral hydrate in any combination may be instantaneously prepared.

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* Read at the Evening Meeting of the Pharmaceutical Society of Great Britain, December 4, 1872.

Thus:—

℞.

Liq. Chloral Hydrat. . .	♏ 80.
Syrup. Flor. Aurant. . .	ʒ iv.
Syrup. Simplicis . . .	ʒ iv.

The resulting syrup will contain ten grains of chloral hydrate to the drachm. Should a colored syrup be desired, as is frequently the case, then the following formula may be substituted:—

℞.

Syrup. Rhœados . . .	ʒ ss.
Liq. Chloral. Hydrat. . .	♏ 80.
Syrup. Flor. Aurant. . .	ad ℥ j.

Or,

Liq. Chloral. Hydrat. . .	♏ 80.
Tinct. Cocci. . . .	♏ ij.
Syrup. Flor. Aurant. . .	ad ℥ j.

An anodyne draught of any requisite strength may be expeditiously prepared; and the solution has this advantage, that although in so highly concentrated a state, it will keep without decomposition any reasonable amount of time.—*Lond. Pharm. Journ. and Trans.*, *Dec.* 7, 1872.

THE DECOMPOSITION OF HYDRATE OF CHLORAL.*

By M. Byasson.

Former investigations of the author have led him to the conclusion that the physiological action of hydrate of chloral is not the same as that of chloroform introduced slowly into the system, but that it is the joint result of the chloroform and the formic acid produced under the influence of the alkalinity of the blood.† He has also shown that sulphuretted hydrogen combines with anhydrous chloral to form a sulphydrate analogous to the hydrate, and like it having soporific properties.‡

In the decomposition of oxalic acid by glycerin, M. Byasson, by replacing the water by alcohol, has etherified directly the formic acid, and thus obtained formic ether by a new process. He was also induced to experiment whether hydrate of chloral, which contains the elements of chloroform and formic acid,

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* Abstracted from "Comptes Rendus," vol. lxxv, p. 1628.

† Pharm. Journ. [3] II, p. 484. Amer. Jour. Pharm., 1872, p. 34.

‡ Ibid., p. 1045. Ibid., 1872, p. 357.

$$C_2HCl_3O, H_2O = CHCl_3 + CH_2O_2$$

could be decomposed into those two bodies without the intervention of alkalies. The following experiment, repeated several times, always yielded concordant results:—If hydrate of chloral be dissolved in five times its weight of syrupy glycerin, and the mixture heated in a retort furnished with a receiver, at about 110° C., a regular action is established which continues up to about 230°; at this temperature the glycerin is strongly colored, and becomes thick, and it is advisable to stop the operation so as not to complicate the results. The product condensed in the receiver is liquid, and separates into two layers; the underneath layer consists of chloroform, the upper one contains formic acid, hydrochloric acid, formate of allyl, and hydrate of chloral dissolved in water. The proportion of chloroform produced as the mean of three operations, was 31 per cent. of the hydrate of chloral. The formation of the formate of allyl is secondary, as also that of the hydrochloric acid. These two bodies are relatively in small quantity, and proceed, the first from the decomposition of glycerin under the influence of heat and nascent formic acid; the second from the decomposition of chloroform. In order to obtain the above results it is important to use syrupy glycerin; if water be added, the greater part of the hydrate of chloral distils over without being decomposed.—*Lond. Pharm. Journ. and Trans., Jan.* 4, 1873.

ON THE PHYSIOLOGICAL AND THERAPEUTICAL PROPERTIES OF THE DIFFERENT IMMEDIATE PRINCIPLES OF OPIUM.

By Dr. Rabuteau.

In a long and interesting series of researches Dr. Rabuteau has extended the investigations of Claude Bernard upon the physiological and therapeutical properties of the constituents of opium. Dr. Rabuteau has examined these properties, not only as they affect the lower animals, but also the human subject, and he has, moreover, considered the alkaloids of opium in relation to their *anodyne* and *anexosmotic* effects. [By the word *anexosmotic* Dr. Rabuteau indicates the property of preventing the flow of liquid through the intestinal walls into the intestinal canal.—Reporter.] He has specially examined these two effects, because opium is very frequently employed to allay pain and to arrest diarrhœa; and he has not only examined the properties of the alkaloids of opium, but also those of the other constituents, such as meconic acid, meconin, etc. It is already well known that the activity of the immediate principles of opium is not the same in each; but Dr. Rabuteau shows, besides, a fact which was not previously known, namely, that the order of activity of these same principles is not the same in man and in the lower animals. He also demonstrates, by the evidence afforded by his own experiments as well as by those of his predecessors, the principles of opium which cause sleep in the human subject, those which allay pain, those which arrest diarrhœa, and, lastly, those which act upon the system in a more energetic and dangerous manner when given in large doses. The principles which have been discovered in opium, and the order in which they are described by Dr. Rabuteau, are as follows:—*Basic principles.*—Thebaina, papaverina, narcotina, codeia, narceina, morphia, opiania, porphyroxin, pseudo-morphia. *Other principles.*—Meconic acid, meconin, water, caoutchouc, resin, fatty matter, gum, mucilage and extractive matters.

The following are among the more important results of Dr. Rabuteau's researches on these substances:—*Thebaina* produces, in the lower animals, violent convulsions, similar to those caused by strychnia, but in man it is far less poisonous than the latter alkaloid. In order to ascertain the *anexosmotic* properties of this and other principles, Dr. Rabuteau drew out from an aperture made in the abdominal walls of certain animals a knuckle of intestine, into which, after tying it, a solution of sulphate of soda was introduced, and then the intestine, tied at both ends, was returned into the abdomen, the animal having previously had a solution of the thebaina injected under the skin. In the case of this alkaloid the portion of intestine was examined after the death of the animal, and was found to contain a large quantity of fluid. Thebaina, therefore, does not counteract the effect of purgatives, or, in other words, is not anexosmotic, and, consequently, is not an opiate preparation which produces constipation, or arrests diarrhœa. Dr. Rabuteau thus summarises the properties of thebaina:—It produces convulsions, and is poisonous in the lower animals, but is less active than strychnia; it is not very poisonous in man; it does not prevent the exosmotic currents of the intestine; it is not soporific, but it increases the anæsthetic effect of chloroform; and it is anodyne.

As it is impossible, from want of space, to specify the researches made by Dr. Rabuteau on each constituent of opium, we can only give his results, which are chiefly as follows:—*Papaverina* is much less active than thebaina, and produces hardly any effect when administered in moderate doses to the lower animals, but in large doses it produces convulsions in frogs. In the case of the human subject it possesses but little activity in rather large doses, as, for instance, twenty centigrammes ($\frac{20}{100}$ of a gramme, about fifteen grains being about equivalent to a gramme); but in larger doses it is poisonous, and causes convulsions; it does not arrest diarrhœa, or, in other words, it is not anexosmotic; it is not soporific, but it assists the anæsthetic action of chloroform. *Narcotina.*—With regard to this principle, Dr. Rabuteau confirms the results of previous observers as to its negative characters. *Codeia* is more poisonous to man than thebaina, but, on the other hand, according to the experiments of Claude Bernard and Dr. Rabuteau, thebaina is the more poisonous to the lower animals. Codeia is dangerous to man in large doses, it is very slightly soporific, very slightly anodyne, and is not anexosmotic, and, therefore, is useless in the practice of medicine. *Narceina*, according to Claude Bernard, is the most soporific of the bases of opium, and is less poisonous than thebaina, codeia and papaverina; but Dr. Rabuteau, from his more recent researches, thinks that although narceina is more soporific in dogs than morphia, yet that in the human subject morphia is superior in this respect. Narceina augments the action of chloroform, and it is anodyne and anexosmotic. *Morphia* is the most poisonous and the most soporific of the principles of opium in man, but it is also the most anexosmotic, as has been proved by experiments similar to those related in connection with the properties of thebaina. It is also anodyne, as is well known, but it presents this inconvenience, that it deranges the system by causing loss of appetite, nausea and vomiting. The other principles of opium are of so little importance in medical practice that it is unnecessary to refer to them in detail.

Dr. Rabuteau concludes his paper with some observations on the simultaneous action of chloroform and the alkaloids of opium. It has been found that the lower animals were much less sensible to pain when they were subjected to the influence of chloroform and also the opiate preparations; thus, in cases where both agents were administered, the insensibility to pain remained, even when the chloroform was no longer administered, and yet the animals did not sleep. The alkaloids of opium, therefore, generally continue the anodyne action of chloroform, although they are not at all soporific, but they almost all possess the property of diminishing sensibility. Claude Bernard and Nussbaum have found that when an opiate subcutaneous injection was performed in certain cases of operation on the human subject, and chloroform was subsequently given, the patient did not awake as usual, but continued to sleep, and during this sleep there was insensibility to punctures, incisions, and even the actual cautery. Dr. Rabuteau, therefore, thinks that insensibility might be obtained with greater certainty and safety by the combined administration of a solution of chloroform and an opiate, than by giving either agent alone.—*Amer. Journ. of Med. Sciences, Jan.*, 1873; *Brit. and For. Med.-Chir. Rev.*, *Oct.*, 1872, from *Gazette Hebdomadaire, April and May*, 1872.

RESEARCHES ON THE POLYMERIDES OF MORPHIA AND THEIR DERIVATIVES.

By E. Ludwig Mayer and C. R. A. Wright, D. Sc.

Before the London Chemical Society a memoir of the above title was read by Dr. Wright, and illustrated with specimens of many of the substances mentioned. The memoir consisted of several papers, the first being on the action of zinc chloride on morphia. At low temperatures, and with concentrated solutions of the zinc salt, tetrapo-dimorphia (apomorphia) appears to be the principal product, but at higher temperatures and with the addition of strong hydrochloric acid a "tetra" polymeride of apo-morphia is formed, which may be called octapo-tetramorphia. The principal results enumerated in the second paper, "On the Action of Hydrochloric Acid on Morphia," are that besides apo-morphia mixtures of three bases are produced which may be written $M+3HCl$, $M+3HCl-H_2O$ and $M4HCl-2H_2O$, where M stands for morphia, $C_{34}H_{38}N_2O_6$. The action of sulphuric acid on morphia appears generally to yield polymerides without abstraction of water, the principal products being the sulphates of trimorphia, $C_{102}H_{114}N_6O_{18}$, and tetra-morphia $C_{136}H_{152}N_8O_{24}$. The authors also describe the results of the action of hydrochloric acid on trimorphia and tetra-morphia and state the physiological action of the various bases, concluding with a table of the names, formulæ, &c., of no less than nineteen derivatives of morphia.

The Chairman in thanking the authors for laying before them the results of their elaborate researches, alluded to the wide field which they embraced, offering various interesting points for discussion.

Mr. Prosjean remarked that the subject was certainly a large one, and already sufficiently bewildering, so that he must protest against the use of some of the names which the authors had employed, more especially the introduction of prepositions into them. Some of the old names were certainly unwieldly enough, but he preferred them to such terms as apomorphia, in which there was nothing to signify that it was derived from morphia by the abstraction of water. It might equally mean that anything else was taken away.

Dr. Wright replied that the title was first employed by the late Dr. Matthiessen to signify that the substance was a derivative from morphia, and that it had now become a conventional term to signify the abstraction of water, and was certainly less a misnomer than such names as oxygen.

Mr. Vernon Harcourt certainly thought that there was no reason for the introduction of prepositions into chemical names without any consideration of the fitness of the term. The prefix "apo" certainly gave no indication that the substance was a derivative formed by the abstraction of water.—*Chem. News, Lond., Dec.* 27, 1872.

THE EXTRACTS CONTAINING CHLOROPHYLL.*

By J. B. Barnes.

In the last London Pharmacopœia it is directed that the extracts of aconite, belladonna, hemlock, henbane, and lettuce, are to be prepared by evaporating the juice of the leaves unstrained to a proper consistence.

The British Pharmacopœia directs the juice to be heated to 130° F. "Separate the green coloring matter upon a calico filter; heat the strained liquor to 200° F. to coagulate the albumen, and again filter; evaporate the filtrate by means of a water-bath to the consistence of thin syrup; and then add to it the green coloring matter previously separated, and stirring the whole together assiduously, continue the evaporation at a temperature not exceeding 140° F., until the extract is of a proper consistence."

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* Read at the Evening Meeting of the Pharmaceutical Society of Great Britain, December 4, 1872.

This is an improvement upon the old method, for the presence of the albumen not unfrequently set up fermentation, nitrous acid was evolved, and nitrites and nitrates formed in the extracts, probably at the expense of the active principles.

With the view of ascertaining if any further improvement can be effected in these preparations, I have made a series of weighings of the insoluble coloring matter contained in different samples of these extracts, obtained from some of the principal pharmaceutical establishments in London. The results are as follows:—

EXTRACT OF ACONITE.

Samples.	Quantity employed.	Amount of Chlorophyll obtained.
No. 1	100 grains	1·5 grains.
No. 2	100 grains	4· grains.
No. 3	100 grains	4· grains.

No. 1 was of the consistence of thick treacle, the filtration went on rapidly and satisfactorily, but Nos. 2 and 3 took some days to filter, and it was found that when warm water was employed in washing out the extract, the filtrate on cooling became turbid; consequently weighings were made of the insoluble matter which had been washed with cold distilled water; they were both firm enough to roll into pills.

EXTRACT OF BELLADONNA.

Samples.	Quantity employed.	Amount of Chlorophyll obtained.
No. 1	100 grains	14 grains.
No. 2	100 grains	17 grains.
No. 3	100 grains	18 grains.
No. 4	100 grains	15·5 grains.

All these were good firm extracts.

EXTRACT OF HEMLOCK.

Samples.	Quantity employed.	Amount of Chlorophyll obtained.
No. 1	100 grains	14 grains.
No. 2	100 grains	9 grains.
No. 3	100 grains	16 grains.
No. 4	100 grains	15 grains.
No. 5	100 grains	8 grains.

Nos. 1, 2, 3, and 4, were tolerably firm, but No. 5 was unusually soft.

EXTRACT OF HENBANE.

Samples.	Quantity employed.	Amount of Chlorophyll obtained.
No. 1	100 grains	16 grains.
No. 2	100 grains	11·5 grains.
No. 3	100 grains	18·5 grains.
No. 4	100 grains	14 grains.

The consistence of the samples was good.

EXTRACT OF WILD LETTUCE.

Samples.	Quantity employed.	Amount of Chlorophyll obtained.
No. 1	100 grains	13 grains.
No. 2	100 grains	1 grain.
No. 3	100 grains	1 grain.
No. 4	100 grains	9·5 grains.

Nos. 1 and 4 were tolerably firm, but Nos. 2 and 3 were of the consistence of thick treacle.

In these experiments, excepting Nos. 2 and 3 of extract of aconite, the coloring matter was separated by dissolving the extracts in hot distilled water; transferred to tared filters, they were washed with warm distilled water until the latter passed through colorless; the chlorophyll was then dried in an air bath at 100 C., until the weight became constant. The insoluble matter in some samples of extracts of aconite and lettuce was very small, amounting to only one and one and a half per cent., and in extract of lettuce was not green but brown; whether this change is due to age or not I am unable to say.

From these varying results it is clear that extracts containing the coloring matter are not of anything like uniform strength; so much so is it the case that I venture to bring the subject before the Society in the hope that discussion will elicit opinion as to the desirability or otherwise of eliminating this cause of varying strength in preparations, which it is so very desirable should be of constant and unvarying strength.

Dr. Harley* has shown how valueless the extract of hemlock of the Pharmacopœia is, and the value he attaches to the preserved juice. It is evident from his experiments that the prolonged application of heat employed to evaporate the juice to the consistence of an extract, dissipates so much of the active principle, conia, that very little of it remains in the extract. It is not improbable that some loss of alkaloid takes place in the preparation of extract of henbane; and it is most desirable that after coagulating and separating the albumen, the evaporation should be carried on at the lowest temperature possible. As far as my experience goes I think that a temperature not exceeding 120° F. should be used, and that the evaporation of the juice should be effected in shallow evaporating pans exposed to a current of dry air, until the proper consistence is obtained.

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* "On the Preparation of Extract of Conium of the British Pharmacopœia, 1864 and 1867," Pharm. Journ., Vol. VIII, 1866-67. Amer. Journ. Pharm., 1867, 266, &c.

It is undoubtedly established that the action of aconitia, atropia, and conia are identical with the medicinal properties of the plants from which they are extracted; and it is not improbable that hyoscyamia will be found to possess the properties of henbane in the highest degree.

The objections which I anticipate will be offered to any alteration in the preparation of these substances, is the absence of the accustomed color, the increased strength, and possibly the greater deliquescence.

My answer to the first objection is that in the case of these so-called green extracts, it is not so very easy to distinguish between one and another, as exemplified by the answers of the candidates who come up for examination in pharmacy. I venture to state that it will not be more difficult to distinguish these proposed *purified extracts* than it is with those already in use, for, although the color will be different, their characteristic odors will be retained.

To the next objection, that of increased strength, any inconvenience which might arise from that source will be more than counterbalanced by the very important consideration of uniformity of strength of these preparations; and in order to facilitate the use of these *pure* extracts I might be allowed to suggest their employment in the form of *liquid extracts;* hemlock, however, should be excluded on account of the volatile nature of its alkaloid.

In order to prepare these fluid extracts, it will be necessary to continue the evaporation until reduced to dryness, before they are converted into the fluid state, and of course the addition of about a fourth part of rectified spirit will be required to preserve them. I have not made any of these solutions, therefore am not prepared to say of what strength they should be made.

They would be more definite in strength than their corresponding tinctures, they would cost less, and the ease with which they could be prepared would, I am sure, be a boon to the pharmacist as well as to the medical man.

The increased tendency of these extracts to deliquesce can be met by making them firmer than those in use at present, and by keeping them in pots better secured than those commonly used. For the dispensing counter, strong glass jars with ground-glass lids, would be found to answer well; and when made into pills, the apt dispenser will not be at a loss to protect them from the action of the air.—*Lon. Pharm. Journ. and Trans., Dec.* 7, 1872.

First Annual Report of the Pharmaceutical Examining Board of Philadelphia.

Philadelphia, *January* 1, 1873.

To His Honor, Wm. S. Stokley. *Mayor of Philadelphia.*

The Pharmaceutical Examining Board respectfully report, that the members appointed by your Honor in April last, in accordance with the "Act to regulate the practice of pharmacy, etc.," approved April 4th, 1872, on being duly qualified by the Clerk of the Court of Quarter Sessions, met on the 29th of April, and organized by the election of James N. Marks as President, Chas. L. Eberle, Treasurer, and James T. Shinn, Secretary.

Rules and by-laws were adopted, and, as soon as the necessary books and papers could be prepared, an advertisement was inserted in nine of the newspapers of the city.

An office was rented and opened at No. 723 Arch street on May 20th, when the Board met daily until after the expiration of the time fixed by law for the registration of apothecaries and retail druggists who were proprietors of stores on April 4th, 1872.

During the year fifty meetings have been held for the transaction of business, and 504 applicants for registration as proprietors received, of which number 492 were approved and certificates ordered to be issued. There have been 287 applications from clerks, of whom 250 appeared for examination as to competency and qualification. Certificates as "Qualified Assistant" were granted to 185 of the applicants, and 65 were rejected as incompetent to be left in charge of a store. Since the passage of the act 10 persons not graduates in pharmacy who wished to open retail drug-stores have been examined by the Board, five of whom received the necessary certificate of competency, and five were rejected as not possessing the requisite knowledge and qualifications.

This record shows that of the number applying for the responsible position of proprietor of a store, where the most deadly poisons were to be dispensed, fifty per cent. were judged by the Board to be unfit for it, and that only seventy-four per cent. of those who were to be left in charge during the absence of the proprietor were deemed competent for the post. At this date twenty-five proprietors and thirty qualified assistants have not called for or obtained their certificates, although duly notified to do so.

The receipts from fees have barely been sufficient to meet the expenses, and the Board regrets the inadequacy of the law to provide the means for prosecuting those who violate it. No cases of fraudulent adulteration of medicines have been reported, but the sale of medicines has been continued in some localities by grocers, and copies of the law have been sent to all the retail grocers whose names appear in the business directory, to call their attention to the provisions restricting the sale of poisons and medicinal preparations to registered pharmacists.

The act was framed for the protection of the public from the dangers incident to the dispensing of medicines by inexperienced and incompetent persons, and, although bearing heavily on some apothecaries, if its provisions are faithfully observed, it will, undoubtedly, in time, confine responsible business to properly educated pharmacists, and materially lessen the risk of accident.

In September last the Board was called upon to mourn the loss by death of its esteemed member, Edward Parrish, whose talents and acquirements in his profession made him a most efficient officer, and whose generous impulses and genial manners endeared him as a personal friend to his fellow-members.

Although the duties devolving upon the Board have been exceedingly onerous, they have been cheerfully and impartially performed, under the conviction that they were for the benefit of the citizens of Philadelphia; and we would invoke the strong support of an approving public opinion, and the cordial co-operation of yourself and the officers of the law.

James N. Marks, Charles L. Eberle,
Robert England, H. B. Lippincott,
James T. Shinn.

Minutes of the Pharmaceutical Meetings.

A pharmaceutical meeting was held January 21st, 1873, William McIntyre in the chair.

The minutes of the last meeting were read and approved, without alteration.

The Chairman introduced to the meeting Dr. Charles H. Thomas.

Mr. Remington presented samples of some of the fluid extracts made according to the new Pharmacopœia; he had been over nearly all of them, and desired to give his experience with them for the benefit of others. He found in several cases that the quantity of menstruum received for moistening the powder was insufficient for this purpose. He commented on several of the individual extracts. Rhubarb, of which a sample was presented, was beautiful, and left nothing to be desired, having the characteristic features of the root. Buchu was also of very superior quality, and altogether unexceptional. Calumba, so very difficult to obtain clear, was spoken of, being almost always cloudy when diluted. Prof. Maisch suggested that the precipitate contains a considerable amount of berberina, and that the glycerin recommended in this fluid extract tends to prevent the precipitation.

In the case of colchicum seed, Mr. Remington did not think the menstruum strong enough to dissolve the essential oil which floats upon the preparation, and prefers the use of strong alcohol to take up the oil.

As a class, the preparations containing alcohol without glycerin were considered beautiful preparations and representing fully the medical properties of the drugs used.

The preparation of ergot was exhibited, and presented the characteristics fully, having the odor of the fresh ergot. His experiments with ipecac were not successful; there remained a considerable amount of undissolved resin which glycerin will not dissolve; the alcohol seems too weak to dissolve the resin, and the finished preparation contains one-half glycerin. Prof. Maisch had four or five samples perfectly clear, made substantially by the officinal process. These were made by himself, the heat carefully regulated, not above 140°; the powder should not be finer than 60°. In this preparation, the temperature is of great importance.

Mr. Remington said that the ipecac used by him was the strongest he had ever seen. The fluid extract of wild cherry was next discussed, as being made so entirely different from the process directed in the last Pharmacopœia, being percolated with water and stronger alcohol.

Professor Maisch made some general remarks about the fluid extracts in the Pharmacopœia, stating that the Committee endeavored to make these formulæ as simple as possible, that they might be understood by the student and those of little experience in the business. The processes were general ones, and were found to meet the requirements of the profession, based on the experience of those best acquainted with the subject. After moistening the drug with the amount of menstruum directed and adding the remainder, the soluble portion of the drug would be dissolved in a very concentrated form after the required time for maceration, and could then be driven out by the addition of an additional quantity of liquid. The fluid extract of wild cherry was in no wise intended to take the place of the syrup. Mr. Remington recommended particularly keeping the percolator closely covered, otherwise during the four days maceration, fissures would be formed in the drug, and the extract will be an imperfect one.

Mr. Remington exhibited a retort stand, modelled by Dr. Squibb, which is a very convenient appliance for the druggist, having conveniences for holding a lamp, funnels and various sized dishes, &c.

Mr. Boring had samples of cinnamon and cassia water, made from the oils by distillation, and by the ordinary process of dissolving the oil by the aid of carbonate of magnesia. The water prepared from Ceylon cinnamon by distillation seemed to be the most fragrant and most characteristic.

Prof. Maisch exhibited a sample of what was offered as cultivated dandelion root, which, upon examination, proved to be chicory.

Mr. A. P. Brown, of Camden, N. J., gave a formula, as follows, for preparing Goulard's cerate:

Benzoinated lard,	℥viiiss.
Yellow wax,	℥iiiss.
Solution subacetate lead,	f℥iiss.
Camphor,	℥ss.

Melt the wax and lard in a water-bath, add the solution subacetate of lead gradually, digest for fifteen minutes, stirring it constantly, remove the mixture from the bath, stir it till cool; lastly add the camphor. This preparation keeps for months, retaining its properties.

Prof. Maisch read a paper upon spiritus æther. nit. as a supposed test for some of the alkaloids, which was ordered for publication,

Prof. Maisch exhibited several varieties of fig plants grown in the neighborhood of Norfolk, Va., which embraced the white, brown, black and celestial fig. It is not known whether figs may be profitably raised in our Southern States on a large scale.

Several varieties of rhubarb were presented, and it was stated that in all varieties raised in Europe the red medullary rays ran from centre to circumference, while in the true rhubarb the rays are dispersed irregularly over the fractured surface. A specimen of true Russian root was exhibited, which came directly from St. Petersburg about three years ago.

The Professor also exhibited models for the illustration of botany. These were manufactured by R. Brendel, Breslau, Germany, and were beautiful in appearance, resembling as near as possible in color the natural objects. The models are made large enough to be seen by a class of students, and by coming apart exhibit the internal arrangements of portions of the plants, and the process of germination in the mono- and dicotyledonous plants. A section of rye was shown, and the manner of growth explained. A beautiful flax plant was shown, showing the structure of the flower, with the stamens and pistils distinctly visible; also models of various fruits, showing the seeds attached, and displaying the embryo. These specimens were made of materials of various kinds, most resembling the parts of the plant.

On motion then adjourned.

Clemmons Parrish, *Registrar.*

Pharmaceutical Colleges and Associations.

New York College of Pharmacy.—A conversational lecture was delivered January 9th, by Prof. W. De F. Day, on "the vegetable kingdom; its curiosities and uses."

Maryland College of Pharmacy.—At the monthly meeting, held December 12th, Mr. J. F. Hancock, in behalf of the Library Committee, reported on the additions to the library made by donations from several friends of the College, and by the purchase at a reasonable price of a complete set of the Pharmaceutical Journal and Transactions from 1841 to 1870. The College expressed thanks to the donors and to the gentlemen instrumental in procuring the books. The Committee hopes that with the plans already devised, the library will soon become useful and attractive. Attention was drawn to a large number of the Maryland Journal of Pharmacy, which are offered by the Committee at $1 per year.

At the stated meeting, held January 19th, Mr. J. F. Hancock. Chairman of the Committee on Annual Meeting, reported progress, suggested March 13th as a good time for the meeting, and stated that Prof. I. J. Graham had consented to deliver the Annual Address. On motion, the Committee was vested with full power to make such arrangements as they might deem most expedient.

Mr. J. N. Potts, Chairman of Committee on Drug Exchange (appointed at a previous meeting), submitted their report, which was accepted, and the Curator was instructed to have placed in the Hall a Bulletin Board, to facilitate in carrying out the recommendations of the Committee. The Treasurer submitted his semi-annual report, which was accepted and referred to an auditing committee. On motion, the Chair appointed Mr. J. F. Hancock to assist the Treasurer in revising the roll of members.

The semi-annual election of officers resulted in the election of Messrs. Joseph Roberts, 1st Vice-President; R. Sappington, 2d Vice-President, and F. Hassencamp and J. P. Frames members of the Board of Examiners.

At a special meeting of the Maryland College of Pharmacy, December 31st, 1872, the following communications were received from the Medical and Surgical Society of Baltimore:

BALTIMORE, Nov. 22, 1872.

To the President and Members of the Maryland College of Pharmacy:

GENTLEMEN:—Being Chairman of a Committee appointed by the Medical and Surgical Society of Baltimore, it is my duty to present to your honorable body the enclosed preamble and resolutions as adopted by the Society.

I would most respectfully submit them for your consideration, and would ask that a Committee of ten be appointed from your body to confer with us and similar committees from the other societies of the city.

Should the proposition meet with your approval, I hope our deliberations will be such as will settle the grievances complained of, and further promote the harmonious relations which should exist between the two professions.

Hoping to hear from you as soon as practicable,

I remain very respectfully, yours,
[Signed] JOHN A. CONNER, M.D.
210 E. Baltimore St.

The Committee appointed at the last meeting of the Medical and Surgical Society of Baltimore, to consider the relations existing between the physician and druggist, beg leave to report the following:

Whereas, We, the physicians of the City of Baltimore, have been grossly injured by the practice of druggists prescribing across the counter, and the indiscriminate renewal of prescriptions without the physician's order; and, whereas, we do not consider the course of study usually pursued by druggists as qualifying them for the practice of medicine; and, whereas, we consider such a course as extremely hazardous to the public and very unjust to the physician; and, whereas, we deem it proper that harmony should exist between the physician and druggist in order to further the interests of both parties, and at the same time to conduce to the welfare and safety of the patient; therefore be it

Resolved, By the Medical and Surgical Society of Baltimore, that a Committee of ten be appointed by this Society to lay our grievances before the Maryland College of Pharmacy, and request the appointment of a similar committee by that body, to devise means to do away with the acts complained of.

[Signed] T. B. EVANS, M.D., *Chairman.*

CONFERENCE OF PHYSICIANS AND PHARMACEUTISTS IN BALTIMORE.—The delegates appointed by the different medical societies of Baltimore, and by the Maryland College of Pharmacy, met at the hall of the College of Physicians and Surgeons, Tuesday, January 14th, and organized by electing Dr. J. A. Connor, Chairman, Dr. Thomas S. Latimer, Secretary of the Medical Committees, and Mr. J. F. Hancock, Secretary of the Pharmaceutical Committee. The Pathological Society had added another specification, making three charges, as follows:

1. Apothecaries prescribing across the counter.
2. Repeating prescriptions without the order of the prescribing physician.
3. Advertising patent medicines by show cards, bills, &c.

Prof. J. Faris Moore was the principal speaker for the pharmacists, and met the different charges ably and forcibly; in his argument he stated that the physicians were responsible for many of the existing irregularities, that he had a list of not less than seventeen nostrums, including trade deceptions, which were prescribed by leading physicians of Baltimore, from Winslow's Soothing Syrup to Hubbell's Elixir of Valerianate of Ammonia; and that the prescription business could not, therefore, be conducted without keeping quack nostrums. His remarks on the subject of popular elixirs, like a two-edged sword, cut on both sides.

After a long and friendly discussion, the following resolutions were adopted:

1st. *Resolved*, That, although it is perfectly admissible for druggists to sell any article for which customers may ask, whether orally or by prescription, yet it is highly objectionable for druggists to prescribe for customers under any circumstances except to meet an emergency.

2d. *Resolved*, That, with the permission of the Societies we represent, this Committee of Conference shall solicit the passage of a law by our State Legislature looking to the regulation of the sale of poisons in this State.

3d. *Resolved*, That the display by druggists of signs calling attention to the sale of patent medicines be considered disreputable.

The Conference, which is to meet again on the first Tuesday of February, is expected to be productive of much good, and to lead to a better understanding between the honorable members of both professions.

Cincinnati College of Pharmacy.—At the annual meeting held January 14th, the following officers were elected: President, J. F. Judge; Recording Secretary, F. L. Eaton; Corresponding Secretary, E. S. Wayne; Treasurer, W. H. Negley; Trustees for short term (holding over), A. J. Tully, Paul Reinlein, Otto Taxis, John G. Fratz; Trustees for long term, J. M. Ayers, J. D. Wells, H. F. Reum, George Eger.

The report of the Recording Secretary, Mr. J. D. Ayers, gives a historical sketch of the new organization, which was effected on the 20th of October, 1871, as follows:

" During this winter strenuous efforts were made by the College to procure the passage of some general legislative enactment regulating the practice of pharmacy, but they were unsuccessful. The matter of obtaining a special act of incorporation for our College was also placed in the hands of a Committee who, on the 2d of April, reported that the present State law of incorporation was such that it was necessary, in order to obtain the legal power to grant diplomas, that our corporation should represent an actual capital of not less than $5,000, and, at a meeting held on the 16th of the same month, it was unanimously resolved to reorganize the College as a joint stock company, under the name of the 'Cincinnati College of Pharmacy, for the purpose of,' &c. The resolution provided for the issue of certificates of stock, and all other details incident to the carrying out of the spirit of the resolution, and authorized the Board of Trustees to take all necessary measures to that end. The Committee appointed by the Board of Trustees, however, made the discovery that the charter of the old Cincinnati College of Pharmacy, dated March 23, 1850, was still in force, and not affected, as had been supposed, by more recent laws, and that it granted to that old organization just the powers we were seeking, and they proposed that a sufficient number of members of the old College should unite in a request to the President thereof for a called meeting of the same, and that at said meeting propositions should be submitted from this new organization looking to their absorption by the old, and a transfer of the properties, moneys, &c., of this organization to the old one. A resolution embodying this proposition and continuing the Committee for the purpose of reporting details of arrangements, was adopted at a meeting of the College on May 7th. In pursuance of this arrangement, at the request of several members of the old College, the President, W. J. M. Gordon, called a meeting thereof, which convened at College Hall, on May 9th, when the proposition of the new College having been submitted, it was, by a unanimous vote, accepted, and the members then present proceeded to ballot for and elected as members those of the recent organization (eighty in number), as were not already members of the old College. The organization of 1871 subsequently held a meeting and passed a resolution approving of the consolidation and transfer of property, and adjourned without day."

The College has now 98 members in good standing.

PHARMACEUTICAL SOCIETY OF PARIS.—At the meeting held November 6th, Mr. Stan. Martin in the chair, a committee previously appointed reported adversely to M. Mayet and in favor of M. Méhu in regard to the priority of the discovery of the solubility of benzoate of iron in oils, the latter having published the facts in 1868. A new ebullioscope made by M. Malligand, was exhibited and referred to a special committee for examination and report. M. Roucher spoke about the collection of the materials for a universal pharmacopœia; several competent persons having promised their assistance, he desired to be charged with the execution of the work. The subject was referred to a Committee. M. Poggiale read a note by M. Dubois on two new processes for the preparation of sulphovinate of sodium. After cooling the sulphovinic acid, prepared in the usual manner, it is mixed with 96 per cent. alcohol and saturated with powdered purified carbonate of sodium. No particular precautions are necessary, since an excess of the carbonate will be left on the filter with the sulphate of sodium, and no elevation of temperature taking place, the chances of loss are avoided. The filtrate and alcoholic washings are distilled and evaporated in a water-bath to crystallization. Should the crystals be colored, one recrystallization from water and evaporation of the solution to a density of 36° or 38° will yield them perfectly white.

An editorial note in the Journal de Pharmacie et de Chimie calls attention to the possibility of an admixture of sulphovinate of sodium, prepared by means of barium carbonate, with sulphovinate of barium; hence the necessity of testing the salt with dilute sulphuric acid for barium, and with chloride of barium for carbonate (and sulphate) of sodium. When heated to about 120° C., sulphovinate of sodium gives off inflammable alcoholic vapors, and leaves acid sulphate of sodium.

The meeting of December 4th was mainly occupied with a discussion on the proposed *European* Pharmacopœia* and the *Universal* Pharmacopœia, as suggested by the Pharmaceutical Congress of 1867.† M. Planchon was elected in place of M. Robinet, deceased, a member of the Universal Pharmacopœia Committee, appointed some years ago, and it was decided to increase the number from five to nine, at the next session.

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* See American Journal of Pharmacy, 1872, p. 567.

† Ibid., 1867, p. 562.

M. Regnault was elected Vice-President, M. Vigier, Secretary, and M. Desnoix, Treasurer, for 1873.

M. Doray, of Saint Lô, suggested laurel leaves (*Laurus nobilis*), as a substitute for cinchona; no observations with it are mentioned.

M. Guichard exhibited a dropping glass, the liquid running from a lateral orifice of three millimetres diameter, and producing drops of water weighing exactly five centigrams.

M. Boudet reported on a question pending before the Academy of Medicine, and which was raised by a letter of the prefect of police, inquiring whether, under the present laws, a midwife is authorized to prescribed ergot in cases of confinement, and whether it should be furnished by the pharmacist. Dr. Tarnier had reported that ergot is not named in the list of poisons. M. Poggiale is of the opinion that a midwife ought not to have the right to prescribe such a dangerous medicament.

The Pharmaceutical Societies of Belgium were formally united in an *Association pharmaceutique générale de Belgique*, in which delegates only were allowed to speak and vote. A number of members demanded the same privileges for all members, and, this being refused, formed themselves into a *Fédération pharmaceutique belge*, which held its first meeting October 26th, in the free university of Brussels, and was formally organized by the election of officers. It is to be hoped that a reconciliation may be effected upon a basis recognizing the right of every member to a full expression of his views.

Editorial Department.

What is in a Name? On page 524 of our last volume we expressed the hope that the Columbia Pharmaceutical Association might not adopt the title of National College of Pharmacy. Professor Oscar Oldberg, in his inaugural address, considers it his duty to profit by the sneers of the uncharitable, and to so manage that in the "future all our institutions may partake of the nationalism of the city itself." To enable our readers to judge of the claims of the new institution to its name, we quote from the Professor's address, premising that the italics in the following quotation are his:

"Washington is to our country the natural rendezvous of communicative and curious minds of all orders. People from all parts of the Union meet here continually, and men of learning, imagination, and wealth, *will* congregate here as fast as we are prepared to receive them. This cosmopolitan American capital of ours has *always* attracted visitors from the most remote corners of our country, but the trouble heretofore has been that they did not deem it profitable or pleasant to remain with us. This difficulty is now, to a great extent, remedied, and we are at last able to present such inducements as will both make the concourse greater and their stay longer. Here is the place then to compare notes, and our city will eventually become the intellectual and educational, as well as the political, center of our land. In fact, gentlemen, I can see no reason why we should not act upon that proposition *now*.

"The step-motherly treatment that our city has received at the hands of our fellow-citizens throughout the States, is as proverbial as it is inconsistent. They have chided us because we did not, *in our sweat*, improve the common property, surround the *public* buildings with splendid avenues, and prepare for *them* a city in which they may take pride and delight, until we have returned good for evil, and brought them to an inglorious surrender withal.

"They berated *us* because the capital of the nation was not what *they* would have it, because it was not worthy of the nation, because it had no attractions, but especially because it had no national institutions of any kind save the governmental departments. They expected to find at Washington not only such advantages as they had been accustomed to in their respective States, but above all everything that they did *not* have themselves. And why? Because, as they have repeatedly told us, the capital of the nation *ought* to have such institutions.

"When Pericles, tho Greek. was accused by his countrymen of squandering the public money on those noble national edifices, of which Athens afterwards boasted, he offered to execute them at his own expense, provided the people would suffer him to inscribe *his* name on them instead of *theirs*. We do not wonder that the Athenians keenly felt the rebuke. But what are *we* to say, who have singlehanded undertaken to provide for *our* exacting countrymen without experiencing a sign of encouragement, or *claiming a tittle of the honor for ourselves!* Let us tell them that we have ceased to be sensible to their unjust reproaches, but that we still have faith in the future, and in the generous national pride that lies at the bottom of the American heart, well knowing that *the loudest are the least generous*."

When the Professor, further on, says that the institutions in Washington "must not—nay, *cannot* be sectional to succeed," we feel compelled to express our sincere regret that he does not draw a distinction between "sectional" and "local," and to state that our views are still those expressed in our November number, and cannot be changed upon the empty accusations of sneering and uncharitableness.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Pharmacopœia of the United States of America. Fifth decennial revision. By authority of the National Convention for revising the Pharmacopœia held at Washington, D. C., A. D. 1870. Philadelphia: J. B. Lippincott & Co. 1873. 12mo, pp. 405. Price, $1.75.

This anxiously looked-for work has at last made its appearance, and, considering the labor that has been bestowed upon it, and the great care necessary in printing to avoid errors of sense not only, but also to render the language uniform throughout, the delay has not been too long.

In accordance with a resolution of the National Convention, the scope of the work has been rather extended, so as to adapt it to the wants of our extended country. Accordingly 27 articles have been added to the lists of materia medica, and 82 new preparations were admitted, while only 12 drugs and preparations have been dismissed, and the formulas of most of the pharmaceutical preparations and some of the chemicals have been more or less altered.

Individually we are not in favor of the arrangement which is still adhered to in our Pharmacopœia—the only modern one, we believe—of dividing the medicinal articles into materia medica and preparations; nor are we convinced of the propriety of giving elaborate directions for the preparation of chemicals which are rarely or never made by the pharmacist. In respect to the former, inconsistencies cannot be avoided, and it is certainly not conducive to the convenience in using the work of having the medicinal articles arranged in three different groups. Apparently there is no reason why most of the acids, and of the salts of ammonium, calcium, iron, magnesium, manganese, lead, potassium, &c., should not have received the same consideration in regard to elaborate processes as other similar preparations, or as the pure alkaloids and their salts, which, like the former, are, perhaps, never made in any pharmacy.

In chemistry there are usually different methods of attaining the same end, and it strikes us that any process for obtaining a chemical compound of a definite composition should be admissible, provided this compound, in regard to purity, comes up to the requirements of the Pharmacopœia. It is not impossible that the necessity of obtaining many chemicals from the manufacturing chemists for which the Pharmacopœia gives processes has had a great influence upon the pharmaceuticals also, in banishing their preparation from many pharmacies, and in establishing for such products of manufacturers a confidence the correctness of which can in most cases not be proven, and which in many instances is entirely undeserved.

The directions for preparing the fluid extracts have been considerably changed and improved, so as to avoid complicated processes, simplify the manipulations, save the menstruum and omit evaporation as much as possible. When the directions are strictly followed, the material will in all cases be practically exhausted, and the preparation will fully represent the crude drug. The strength of the troyounce to the fluidounce has been made uniform for all fluid extracts. In this connection it should be mentioned that the fluid extract of wild cherry is entirely different from that of the former Pharmacopœia, containing now only a portion of the hydrocyanic acid and volatile oil formed, but the entire amount of the astringent and bitter principles.

The change in the nomenclature of the chemical preparations is particularly commendable, inasmuch as it establishes a uniformity and consistency which has been more or less wanting in all pharmacopœias. This change is in accordance with the suggestions advanced by Professor Attfield, and commented upon in a former number;* thus, we have now ammon*ii* carbonas, magnes*ii* sulphas, potass*ii* bitartras, sod*ii* boras, &c., while such names as alumen, calx, creta, ammonia, magnesia, potassa, soda have been retained, the last four for the oxides or hydrates.

In addition to the tables which have been usually found in our national Pharmacopœia, some new ones have been added in the present edition, which will be of great service to many pharmacists; we refer to the tables on the decimal weights and measures, and their relation to those of the Pharmacopœia.

It is to be hoped that physicians and pharmacists will now, without unnecessary delay, make the new Pharmacopœia their guide in prescribing, and particularly in making the preparations; in the latter case observations should be carefully made, and where the results may differ from those of the Committee, the experience, after careful verification, should be communicated for publication, so that the sixth revision of the Pharmacopœia may become even more perfect. In its general appearance the work leaves nothing to desire.

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*See American Journal of Pharmacy, 1871, p. 334.

Pharmacopœa Germanica. Berolini apud Rudolphum de Decker. MDCCCLXXII. 8vo, pp. 442.

The German Pharmacopœia, in accordance with a decree of the Chancellor of the Empire, has taken the place of the various pharmacopœias formerly in use in Germany, since November 1st, 1872. In 1871 a committee, consisting of twelve prominent pharmacists, physicians, and professors in universities, selected from all sections of Germany, was charged with compiling and editing the pharmacopœia which is now before us. With the exception of the Chancellor's decree, above referred to, and the popular names of drugs and medicines, it is printed throughout in the Latin language.

The crude articles and preparations are arranged in alphabetical order. After the officinal name, the popular name and the Latin synonyms are given, and in the case of vegetable and animal drugs, their origin, which is followed by rather lengthy descriptions of the drugs and notices of the probable impurities.

In all the formulas quantities are expressed solely in parts (by weight). Percolation is not practiced; tinctures, extracts, &c., are made by maceration or digestion, with subsequent expression, even if the menstruum used be ether. Chemicals, like the crude drugs, are described according to their physical properties, solubilities, &c., and tests for ascertaining their medicinal purity are given. Only in such cases where different processes yield different results the Pharmacopœia has adopted a formula.

A list of reagents is added, followed by several important tables. Table A contains the maximum doses of potent medicines, beyond which the physician is not allowed to prescribe, nor the pharmacist to dispense, unless the prescriber adds the sign !, indicating that the unusual dose ordered is not a mistake on his part. Table B enumerates the poisons which are to be kept separate from the other medicines, and under lock and key Table C gives the more or less dangerous medicaments which have to be kept in a separate place, but need not be locked up. A list of specific gravities at 15° C. follows, which have to be ascertained on the inspection of the pharmacies, and then a table giving the percentage by weight and measure of anhydrous alcohol contained in spirit of a given specific gravity.

The nomenclature is similar to that of the last Prussian Pharmacopœia.

To adapt the work to the wants of the different sections of Germany, a larger number of preparations have been admitted than were found in most pharmacopœias of the different German States. It contains a number of articles which are little or not known in this country. In a future number we intend to quote some of them, want of space not permitting it in the present issue.

Wöhlers Outlines of Organic Chemistry. By Rudolph Fittig, Ph.D., Nat.Sc.D., Professor of Chemistry in the University of Tübingen. Translated from the eighth German edition, with additions by Ira Remsen, M.D., Ph.D, Professor of Chemistry and Physics in Williams College, Mass. Philadelphia: Henry C. Lea. 1873. 12mo, pp. 530.

Wöhler's Outlines have been for so long a time a text-book in Germany, and its value as such has been there so universally acknowledged, that Professor Remsen has conferred quite a benefit upon the student of chemistry by translating this valuable work, and by additions bringing it up to the state of science at the date of its publication. He well and truly remarks in the preface: "The beginner will find a simple principle of classification, carefully carried out, eminently fitted to his first object of obtaining a general view of the subject; the advanced will find it exceedingly rich in statements of facts with which he has constantly to deal." We cannot speak more fittingly of a work which for more than a quarter of a century has fulfilled its mission so well, and in the various editions through which it has passed has kept pace with the progress in chemistry, as might indeed have been expected from its authors. We heartily recommend it as a very useful book.

The Chemist's and Druggist's Diary and Pharmaceutical Text-Book. 1873. 4to, 92 pages, and 32 pages of advertisements.

This convenient work is published by "The Chemist and Druggist," London, and contains the diary upon 80 pages; then follow a number of medical, perfumery and miscellaneous formulas, a list of poisons and their antidotes, information about normal human weights and measurements, statistical &c. items, mainly relating to Great Britain, and a dictionary of incompatibles. The quarto size of the volume makes it particularly adapted to be used in the store. We select a few from the numerous formulas:

Phénol Sodique.—A popular preparation of carbolic acid for medical and dental purposes. Take of carbolic acid, in crystals, 188 grains, caustic soda 31 grains, pure water 4 fluidounces; mix. The carbolic acid should be free from offensive odor, such as is prepared for medicinal purposes. When first mixed it is nearly colorless, but in time it assumes a wine color, does not deposit any tarry residue, too often found in the commercial article. This formula is the result of numerous experiments, and gives an article that will compare favorably with the best French phénol sodique.

Bay Rum —(Formula much employed in the West Indies). Fol. myrciæ acris 2 lbs., cardamomi ½ lb., cassiæ cinnamomi 2 oz., caryophylli 1½ oz., rum 9 qts. Distil 1½ gallons.

(Probably the best imitation). Oil of bay 10 fluid-drachms, oil of pimento 1 fluid-drachm, æther acetic 2 fluidounces, alcohol 3 gallons, water 2½ gallons. Mix, and filter after a fortnight.

Proceedings of the American Pharmaceutical Association at the twentieth annual meeting, held in Cleveland, Ohio, September, 1872. Also the Constitution and roll of members. Philadelphia: Sherman & Co., Printers, 1873. 8vo. pp. 354. Bound in cloth, price $3.00.

This volume has just been published, and will at once be distributed to the members. The annual report on the Progress of Pharmacy did not reach the Secretary, and is missing in this annual publication for the first time since 1857. The papers read at the last meeting were 27 in number, quite a falling off from the number read at the St. Louis meeting; many of them, however, are of considerable interest. Not less than 23 queries have been continued to members, at their request, to be reported on at the meeting in Richmond, in September next, and 47 new queries have been propounded, of which number 39 were accepted for report by members, and 8 left for general acceptance, so that at the next meeting many interesting subjects will be brought forward if the members will in due season institute the necessary inquiries and experiments. In our next number we intend to publish, entire or in abstract, some of the papers, several of which are illustrated by woodcuts. The report on the drug market contains much information, mostly statistical, and the report on legislation, a collection of the pharmaceutical laws enacted last year. In an appendix, information is given on the signal service of the United States, embellished by three handsome weather maps and the meteorological record with synopsis, probabilities and facts for one day, as issued by the Chief Signal Officer, in Washington, D. C.

OBITUARY.

Christian Carl Arthur Casselmann, Ph. D., M. Phar., and Editor of the Pharmaceutical Journal for Russia, died in St. Petersburg, November 16th, 1872, aged 44 years. The deceased has been a hard and successful worker towards raising the status of pharmacy in his adopted country, Russia, and his learning and amiable character have gained him the esteem and love of a large circle of friends in all countries where scientific pharmacy is valued. In him, the American Pharmaceutical Association loses one of its honorary members, and the Philadelphia College of Pharmacy one of its corresponding members. The deceased, we believe, had also been elected an honorary member of several other American societies.

Adolphe Georges Guillemette, a distinguished pharmacist of Paris, died there, after an illness of three weeks, at the age of 64 years, and was buried October 28th, when, in the name of the Paris Pharmaceutical Society, Mr. Gobley pronounced an elocution, from which we take the following notes:

"The deceased was born in 1808, at Magny, near Caën, studied pharmacy at Bretteville, with his uncle, and subsequently came to Paris, obtaining an engagement with M. Boutron-Charlard, whom he succeeded in business in 1835, which he carried on with assiduity and success for 35 years. In connection with M. Boutron he established the identity with mannite of grenadin, a crystalline principle obtained from pomegranate bark; the crystalline odorous principle of melilot was proven by him to be identical with coumarin of Tonka beans."

Dr. L. Carius, Professor of Chemistry in the University of Marburg, died in December last. He enjoyed a well deserved reputation as an analist, but devoted his researches not exclusively to analysis, extending them also to many mostly organic, compounds, as the derivatives of benzole, propyl, glycerin, &c.

THE

AMERICAN JOURNAL OF PHARMACY.

MARCH, 1873.

NOTE ON THE PREPARATION OF OLEIC ACID AND THE OLEATES OF MERCURY AND MORPHIA.

To those of your readers who may have encountered the same difficulties as your correspondent, Mr. C. Rice, in procuring *pure* oleic acid and in preparing oleates of mercury and morphia, the following remarks may perhaps prove interesting. The process we here describe is one which we have adopted after meeting with the same difficulties as mentioned by that gentleman, in procuring oleic acid sufficiently pure for the preparation of the oleates in an acceptable condition, without liability to decomposition.

All the samples we have hitherto obtained, either from American or European sources, have proved to be more or less contaminated with oxyoleic and stearic acids; and it is perhaps owing to their presence, in a certain degree, that reduction of mercury has always followed their use; whilst oleates, prepared with the oleic acid obtained as we describe, have not in any instance precipitated, and are, moreover, unobjectionable as to color and appearance.

Any given quantity of almond oil* is taken and saponified by means of potassa, care being taken to insure the entire saponification of the oil, which may be easily tested by means of strong alcohol. The soap is then decomposed by means of tartaric acid, carefully washed to free it from bitartrate of potassa, etc.; then placed on a water-bath, and heated for several hours with half its weight of finely-powdered oxide of lead; the resulting combination, after cooling, is mixed with about three times its volume of ether, and allowed to settle; the clear ethereal solution is decanted and the residue treated by a fresh portion of ether, and decanted as before. The mixed ethereal solutions are then briskly agitated with an excess of dilute hydrochloric acid, to eliminate the oleic acid, which rises dissolved in the ether to the surface of the water. The solution is next washed with water and distilled to recover the ether, which may be used for a subsequent operation.

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*We give the preference to this oil on account of its lesser liability to sophistication.

The portion remaining in the still consists of oleic acid $C_{36}H_{33}O_3,HO$ contaminated with a certain quantity of oxyoleic acid $C_{36}H_{32}O_4HO + HO$. In order to free it from the latter, the mixture is saturated with solution of ammonia, and the resulting compound, decomposed by means of chloride of barium, which throws down a precipitate of oleate and oxyoleate of baryta. The precipitate is then dried and treated with boiling alcohol, which deposits, on cooling, crystals of oleate of baryta, without any trace of oxyoleate. The oleate is then decomposed by a solution of tartaric acid in *boiled* distilled water, which sets free the pure oleic acid. Care must be taken in washing this acid for the last time, and also in decomposing the oleate of baryta, to avoid contact with the atmosphere.

When thus prepared, oleic acid is nearly colorless and slightly thinner than almond oil; it dissolves readily both the binoxide of mercury and morphia, forming with them solutions varying from almost white (5 per cent.) to the color of linseed oil (10 and 20 per cent.) without giving rise to precipitates.

In preparing the oleates, the mixture should never be heated to more than 150° F., and the solution should be made in a closed vessel, in which the atmospheric air has been deprived of its oxygen or replaced by pure hydrogen; proper precautions being taken to allow for the expansion of the gas before entirely closing the apparatus.

New Orleans, La. F. & H.

NEW REACTION FOR CARBOLIC ACID.

By Charles Rice.

The following reaction for carbolic acid, which occurred to me some time ago, accidentally, is very decided and quite delicate.

Into a five-inch test-tube place about 10 grains of powdered chlorate of potassa, pour upon it strong hydrochloric acid to the depth of about one inch, and allow the action and evolution of gas to proceed for about one minute. Then dilute with $1\frac{1}{2}$ volumes of water, and remove the gas contained in the upper part of the test-tube by blowing it out with a bent glass tube. It is advisable not to omit this precaution, since otherwise the subsequent addition of ammonia is frequently accompanied by a vivid flash of light. Pour upon the liquid in the tube solution of ammonia, without shaking, so that the latter will float upon the liquid to the depth of about a half inch, and remove the white clouds of chloride of ammonium by blowing gently through a glass tube as before. Now add a few drops of the liquid suspected to contain carbolic acid, by pouring it down the sides of the tube. If any be present, the upper previously colorless ammoniacal layer will assume a color varying from the darkest brown through all the shades of red brown, blood red, rose red, according to the quantity of carbolic acid present. The color appears first, either at the top, when much acid is present, or below at the point of contact of the two layers of liquid, when the quantity of acid is small, in the form of a colored ring. One part of carbolic acid in 12,000 may yet be distinguished. The same reaction is produced with creasote; but I have not been able to produce it with any other substance. In the meantime this test will no doubt prove useful as a negative one: the failure of the reaction proving the absence of a notable quantity of carbolic acid.

New York, Jan. 24, 1873.

GERMAN CHERRY JUICE.

By A. W. Miller, M. D.

This article is at present imported from Germany in large quantities, being manufactured principally in the vicinity of Magdeburg. It is obtained by expressing the common black cherries, which are there cultivated for this express purpose. In this country it is chiefly consumed by the compounders of liquors in a number of their preparations. Finding that it also can be advantageously employed for pharmaceutical purposes, it appeared to possess sufficient interest to warrant calling the attention of the profession towards it.

The importance of cherry juice to the liquor trade may be estimated from the fact that a single firm in this city imports annually from 350 to 500 casks, while the entries at the New York Custom House are at least 1500 casks per annum. Each of these casks, which are similar to those in which German wine is imported, contains from 150 to 200 gallons.

Cherry juice is a richly colored, dark red liquid; it is somewhat glutinous, but perfectly bright and clear. Its taste is rather pleasant, fruity, slightly acidulous and somewhat alcoholic. Without the addition of sugar it is rather too sour to be agreeable as a beverage. The specific gravity of a specimen examined was 1·041, but this, of course, may vary materially.

The importers state that its alcoholic strength ranges from 10 to 15 per cent. In order to arrive at a more definite figure in regard to the cask under examination, one gallon of it was subjected to fractional distillation, with the following results:

1st pint distilled contained 33½ per cent. of alcohol.
2d " " 12½ " "

Summing these up and reducing them to the full quantity, an average of 11½ per cent. is obtained. Allowing for a little loss, though, as the distillation was conducted carefully, this could not have been very great, it is probable that the proportion of alcohol was really about 12½ per cent., or one-eighth of the entire bulk. It may be here remarked that the article pays an *ad valorem* duty of 25 per cent., and as this is usually about 17 cents per gallon, the importers save the difference between this and the specific duty on the spirit which it contains, which would be 12½ per cent. of $2.00, or 25 cents per gallon. The above amount of alcohol seems to be sufficient to preserve the juice under ordinary circumstances, although it will occasionally ferment during the hot weather of summer, particularly when left in half filled barrels.

As the importer's price for German cherry juice is usually rather less than $1.00 (gold) per gallon, this low figure is one of its main recommendations. This rate in reality is only about one-fourth of that which is usually paid for fruit juices put up in hermetically-sealed quart bottles. The small proportion of alcohol contained in the cherry juice cannot be held to detract from its merits, as it can readily be expelled by heat, and wherever the arrangements are such that it can be recovered by distillation, it will positively add to the money value, being worth nearly double that which has been paid for the article. The fact of the juice being perfectly clear and transparent, so that it will mix in all proportions with syrupy and alcoholic liquids without producing the slightest turbidity, is another important point in its favor. Besides this, the juice is always ready for immediate use, requiring neither filtering, straining nor any other troublesome and tedious preparation, and it is not near so liable to spoil as solutions of cochineal. Indeed, it will be very difficult to find any other article, by means of which an equally beautiful tint can be given to elixirs, Curaçoa cordial or other elegant pharmaceutical preparations, and particularly in so convenient a manner.

Cherry juice seems also to be specially suited for the compound syrup of phosphates, with the coloring of which most manufacturers have heretofore had trouble. Used in the proportion of one ounce of juice in a pint of the syrup, it produces a brilliant claret red color, which is not affected by either muriatic or phosphoric acids, and which is neither precipitated nor bleached by exposure to the light. The fruity flavor imparted to the syrup, of course, is rather an advantage than otherwise.

Soda water syrups, prepared from strawberry and raspberry juice, particularly when it is a year old, have often less color than is desirable. While most druggists are reluctant to add anilin or any other artificial coloring matter, there can be no possible objection raised to the crimson tinted cherry juice, about four ounces of which will be found to be sufficient to bring one gallon of strawberry syrup up to the proper shade. Professor Parrish, in his "Practical Pharmacy," even highly recommends the admixture of black cherries with raspberries in the preparation of the syrup, and the same suggestion occurs in several French works. For enriching the color of raspberry syrup, eight ounces of cherry juice can be used advantageously to a gallon.

The following pharmaceutical formulæ illustrate some additional applications of cherry juice in the drug business. All of them have been thoroughly tested, and most of them have been in use for some time, having met with general approbation among the consumers:

Cherry Soda Water Syrup.

German Cherry Juice,	1 quart.
Water,	1 quart.
Best Crushed Sugar,	7½ lbs.
Citric Acid,	½ oz.

Boil in a porcelain capsule and strain. This yields a finely flavored and richly tinted syrup, which is much admired by the frequenters of the fountain.

Cherry Wine.

German Cherry Juice,	3 quarts.
Grape Sugar Syrup,	1 pint.
Simple Syrup,	1 pint.

This furnishes a cheap, palatable and gently stimulating beverage. Its taste resembles the best of the popular domestic fruit wines.

Cherry Jelly.

Cox's or Cooper's Gelatine	1½ drachm.

Wash with cold water, and add

White Sugar,	1 ounce.
German Cherry Juice,	½ "
Boiling Water,	5 ounces.

Stir until all the gelatine and sugar have been dissolved, and then set aside in a cool place to gelatinize. As a pleasant variation in the diet of invalids, this can be highly recommended. It is also occasionally quite acceptable as a dessert for the table.

Translated into the language of the kitchen, the above may be directed to be made by putting two heaped spoonfuls of Cox's gelatine into a coffee cup, washing it with cold water, adding a heaped tablespoonful of sugar and one tablespoonful of cherry juice, then nearly filling the cup with boiling water, and stirring until all is dissolved.

Imitation of the Syrup of Red Oranges of Malta.

(Sirop d'Oranges rouges de Malte.)

Simple Syrup,	1 gallon.
German Cherry Juice,	6 oz.
Essence of Curaçoa orange (containing 2 oz. of oil in a pint),	½ oz.
Citric Acid,	1 oz.

The quality of this syrup depends almost entirely on the purity and freshness of the essence of Curaçoa, which is difficult to obtain of good flavor. The syrup itself should be made in small amounts, as it is liable to be changed to an unpleasant rancid flavor on long exposure.

Imitation Strawberry Syrup.

Simple Syrup	1 gallon.
German Cherry Juice,	4 oz.
Tincture of Orris Root,	1 oz.
Citric Acid,	6 drachms.
Strawberry Flavor,	3 "

Imitation Raspberry Syrup.

Simple Syrup	1 gallon.
German Cherry Juice,	8 oz.
Tincture of Orris Root,	2 oz.
Citric Acid,	6 drachms.
Raspberry Flavor,	3 "

The compounders of liquors use cherry juice chiefly, if not exclusively, for manufacturing cherry brandy (known also as cherry bounce or guignolet), blackberry brandy and an imitation of Port wine. For the benefit of those who may be desirous of knowing the composition of these fancy liquors, which have a large sale in the South, the following receipts are appended, which have been obtained from trustworthy sources:

Cherry Brandy.

German Cherry Juice,	15 gallons.
Pure Rectified Spirits,	20 "
Simple Syrup,	5 "
Oil of Bitter Almonds,	1 drachm.

Rectified spirit is understood to be whiskey, which has been thoroughly deodorized by percolating through charcoal, and which is of first proof = 50 per cent. alcohol.

Blackberry Brandy.

German Cherry Juice,	3 gallons.
Pure Rectified Spirits,	25 "
Simple Syrup,	5 "
Clear Water,	5 "
Oil of Cinnamon,	1 drachm.
Oil of Cloves,	1 "

The oils are to be first dissolved in about a pint of alcohol, or high wine and then to be mixed with the spirits before the addition of the other ingredients.

Imitation of Port Wine.

German Cherry Juice,	15 gallons.
Pure Rectified Spirits,	10 "
Clear Water,	10 "
Simple Syrup,	4 "
Tincture of Rhatany,	1 pint.
Port Wine Ether,	2 ounces.

It is claimed that fictitious port wine is not at present manufactured in this country, as the same thing can be done abroad at a much lower figure. It is stated that ordinary port wine, which is not by any means the pure juice of the grape, can be imported for somewhat less than 70 cents per gallon. Under these circumstances, it is, of course, in the interest of liquor merchants to sell wines "strictly pure as imported" or "in bond," rather than to trouble themselves unnecessarily in compounding them here.

COD LIVER OIL AND LACTO-PHOSPHATE OF LIME.

By Edward Chiles.

This remedy is being quite extensively prescribed by physicians, and as considerable inquiry has been made as to an eligible mode of prescribing it, I will give my experience in the manufacture of the article, and also a simple process for making syrup of lacto-phosphate of lime.

For a long time I have had demand for a tasteless cod liver oil, and have been in the habit of preparing it in the form of an emulsion with gum arabic and water, and covering the odor with a few drops of essential oil of bitter almonds.

Over a year ago I found physicians were prescribing cod liver oil and lacto-phosphate of lime, and I devised a formula for it, based on my experience with the simple emulsion and the syrup of lacto-phosphate of lime, for which a considerable demand had sprung up. The formula I then devised has been followed by me up to the present time, and has invariably given satisfaction, and produces an article which does not separate or become rancid.

I think, however, it should be prepared extemporaneously as prescribed by physicians, and I have not kept it on hand, but prepare it as wanted, thus always giving a perfectly sweet article.

Take of Gum arabic,	℥ij ʒij.
Water,	f℥ij.
Syr. lacto-phosphate of lime,	f℥vi.
Cod liver oil,	f℥viij.
Essential oil bitter almonds,	six drops.

Rub the gum, water and syrup together, until a smooth mucilage is made, then add the oil gradually with constant stirring, and, lastly, the oil of bitter almonds.

Thus made, each tablespoonful of cod liver oil and lacto-phosphate of lime contains four (4) grains lacto-phosphate of lime and 50 per cent. of cod liver oil. The gum in the above should be selected, ground and passed through a seive of 60 meshes to the inch. Cod liver oil and lacto-phosphate of lime, prepared in this manner, forms a preparation free from unpleasant taste and odor, and enables the practitioner to administer these valuable remedies without repugnance on the part of the patient.

Syrup Lacto-Phosphate of Lime.

Take of Chloride of calcium,	℥i.
Phosphate of soda,	℥iv.
Concentrated lactic acid,	℥i.

Dissolve the chloride of calcium and phosphate of soda separately, and mix the solutions; wash the precipitate and dissolve in the acid. Filter and mix with sufficient syrup to make two and one-half pints.

Philadelphia, Feb. 12th, 1873.

FORMULAS FOR TWO ELIXIRS.

By James W. Long.

Elixir of Quinia and Taraxacum.

R

Vinum Quiniæ,*	O j
Ceylon Cinnamon, ground,	
Coriander,	aa ʒ jss.
Aniseed,	
Caraway,	aa ʒ ss.
French Brandy,	fl℥ ij.
Simple Syrup,	fl℥ v.
Fluid Ext. Taraxacum,	fl℥ ij.
Cinnamon Water,	fl℥ iij.

Percolate through the aromatics the vinum quiniæ, following it with the brandy; next add the syrup and taraxacum without filtration, and lastly the cinnamon water through the filtering paper. Let the mixture stand three days, with frequent agitation, when filter again through paper.

When made strictly according to this formula, a cloud or precipitate will form with age. After repeated trials, I have been unable to remedy this without impairing the strength, but as this does not interfere with the taste, I regard it as of no consequence.

This Elixir has met with considerable favor from physicians, who have used it as a tonic and stimulant, and also made it a menstruum for either the administration of more quinia or other remedies.

Another very handsome and exceedingly palatable preparation is the

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* The dose of quinia in this elixir can be regulated by the proportions of the wine, and the elixir can be made to contain any amount, from one to five grains in a tablespoonful, and still be palatable.

Elixir of Iron (*Ferri Pyrophosphas, U. S. P.*)

R

Ferri Pyrophosphatis, grs. 160.
Dissolve in 6 fluid-ounces of water, by pouring from one glass vessel to another.
Add Spts. Vini Gallici, . . iv.
And Vini Aurantii, . . . fl℥ ij.
Prepare a filter and place in it
Caraway, ... ʒ ss.
Coriander, . . . ʒ jss.
Aniseed, ... ʒ ss.
Grd. Orange Peel, . . . ʒ ij.
Ceylon Cinnamon, ground, . . ʒ jss.

Filter the solution through the aromatics into a bottle having four fluid ounces of simple syrup in it, and add enough of the following mixture to make it measure one pint.

Vini Aurantii, . . . 2 parts.
Spts. Vini Gallici, . . 2 parts.
Aquæ Destill., . . . 1 part.
Mix by agitation.

Each tablespoonful of the Elixir contains five grains of the iron salt. It will not become sour, and can be made in bulk to keep an indefinite time.

SELECTED FORMULAS FROM PHARMACOPŒA GERMANICA.

By the Editor.

Many of the numerous German practitioners residing in this country continue to prescribe preparations which are officinal in Germany, and are either little known to American pharmacists or differ in strength and occasionally in composition from similar ones officinal in our national Pharmacopœia. In the following selection, in which the nomenclature of the Pharmacopœia is retained, we shall endeavor to present to our readers the more important preparations, and to point out any difference in strength or composition. All the quantities given are in *parts by weight.*

Acetum aromaticum. Oils of rosemary, juniper and lemon, of each 1 part; oil of thyme, 2 p.; oil of cloves, 5 p.; tincture of cinnamon (Chinese cinnamon, 1 p., to 68 per ct. alcohol, 5 p.), 100 p.; aromatic tincture (see formula below), 50 p.; dilute acetic acid, spec. grav. 1·040, 200 p.; distilled water, 1000 p. Mix, and after three days filter.

Note. The dilute acetic acid of the German Pharmacopœia is of about the same strength as the acetic acid No. 8 of our commerce.

Acidum aceticum aromaticum. Oil of cloves, 9 parts; oils of lavender and of lemon, each 6 p.; oils of bergamot and of thyme, each 3 p.; oil of Chinese cinnamon, 1 p.; glacial acetic acid, 25 parts. Dissolve by agitation.

Acetum Colchici. Colchicum seed, bruised, 1 part: alcohol, 90 per ct, 1 p.; pure vinegar (6 per ct. acetic acid), 9 parts. Digest for eight days, express and filter.

Acetum Digitalis and *Acetum Scillæ* are prepared in the same proportions, the latter requiring only maceration for three days and light expression.

Ammonium carbonicum pyro-oleosum. Carbonate of ammonium, 32 parts: Dippel's animal oil, 1. p. Mix thoroughly.

This preparation, sometimes prescribed as a powerful stimulant, is employed in making

Liquor Ammonii succinici. Succinic acid, 1 part; dissolve in 8 parts of distilled water, and neutralize with pyro-oleous carbonate of ammonium, 1 p., or q. s. After twenty-four hours filter.

Ammonium chloratum ferratum. To a solution of 16 p. chloride of ammonium in 32 p. water add 3 parts solution of ferric chloride (containing 15 per ct. of iron or 43·5 per ct. anhydrous ferric chloride). Evaporate to dryness in a porcelain vessel, with continued agitation, and rub the residue to powder.

Aqua aromatica, s. Aqua cephalica, s. Balsamum embryonum. Sage, 4 parts; rosemary, peppermint, lavender, of each 2 parts; fennel and Chinese cinnamon, each 1 part. The bruised materials are mixed with 26 parts alcohol and 130 p. water, macerated for 24 hours, and 72 parts obtained by distillation.

Aqua Cinnamomi spirituosa s. vinosa. Chinese cinnamon, 68 per ct. alcohol, of each 1 part; water, 10 parts. Distil 5 parts.

Aqua fœtida antihysterica, s. Pragensis. Galbanum, 8 p.; assafœtida, 12 p.; myrrh, 6 p.; valerian, 16 p.; zedoary, 16 p.; angelica, 4 p.; peppermint, 12 p.; wild thyme, 8 p.; chamomile, 8 p.; castor,

1 p. The bruised drugs are macerated for twenty-four hours with 150 p. of 68 per ct. alcohol, then 300 p. of water added, and 300 parts obtained by distillation.

Aqua Opii. Coarsely powdered opium, 1 part; water, 10 parts. Distil 5 parts.

Aqua vulneraria spirituosa s. vinosa. Peppermint, rosemary, rue, sage, wormwood, lavender, of each 1 part; 68 per ct. alcohol, 18 p.; water, 50 p. Macerate for two days, and distil 36 parts.

Ceratum Æruginis, s. viride, s. Emplastrum viride. Yellow wax, 12 p.; Burgundy pitch, 6 p.; turpentine, 4 p.; finely powdered verdigris, 1 part.

Ceratum myristicæ s. Balsamum nucistæ. Yellow wax, 1 p.; olive oil, 2 p.; expressed oil of nutmegs, 6 parts. Mix.

Cetaceum saccharatum s. præparatum. Spermaceti, 1 part, powdered sugar, 3 parts. Rub to a very fine powder.

Charta nitrata.—Bibulous paper, saturated with a solution of 1 p. nitrate of potassium in 4 parts water, and dried.

Charta resinosa, s. antirheumatica, s. antarthritica. Black pitch, turpentine, of each 6 parts; yellow wax, 4 p.; resin, 10 p. Melt together and coat paper with the mixture.

Cuprum aluminatum, s. Lapis divinus. Powdered sulphate of copper, nitrate of potassium and alum, of each 16 parts. Fuse them in a porcelain vessel, remove from the fire, and stir in a mixture of 1 p. each of powdered camphor and alum.

Elixir amarum. Extract of buckbean, extract of orange-peel, of each 2 parts; peppermint water, 68 per ct. alcohol, of each 16 parts; spirit of ether (made of 3 p. alcohol and 1 p. ether), 1 part. Dissolve and mix.

Elixir Aurantii compositum, s. viscerale Hoffmanni. Orange-berries, 6 parts; Chinese cinnamon, 2 p.; carbonate of potassium, 1 p.; Sherry wine, 50 parts. Macerate for eight days, express, strain and add 1 part of each of the extracts of gentian, wormwood, buckbean and cascarilla; dissolve, allow to settle, and filter.

Elixir e Succo Liquiritiæ. Purified liquorice (by exhausting with cold water and evaporating), 2 parts; dissolve in 6 p. of fennel water and add 2 parts of anisated ammonia.

The latter article, named

Liquor Ammonii anisatus, is made by dissolving 1 part of oil of anise in 24 parts alcohol and adding 5 parts water of ammonia.

Emulsio oleosa. Expressed almond oil, 2 p.; gum arabic, 1 p.; distilled water, 17 parts.

Emulsio Amygdalarum composita. Sweet almonds, 4 p.; hyoscyamus seed, 1 part; dilute bitter almond water (made by distillation, and containing $\frac{1}{200}$ per ct. HCy), 64 parts. Make an emulsion and add sugar, 6 p., and magnesia, 1 part.

Extractum Chinæ frigide paratum. The cold infusion of 2 parts of pale cinchona bark is evaporated to 1½ parts; when cold, filtered, and evaporated to the proper consistence.

Extractum Ferri pomatum. The juice of 50 parts sour apples is by digestion saturated with powdered iron, and the filtered liquid evaporated.

Extractum Malti. 1 part of barley malt is macerated for three hours with 1 part of cold water; 4 parts of water are then added, the whole digested for an hour at a temperature not exceeding 65° C., then heated to boiling, expressed and strained. The clear liquid is evaporated with constant agitation, and the extract preserved in a cool place.

Extractum Malti ferratum. 95 parts extract of malt are mixed with 2 parts pyrophosphate of iron, previously dissolved in 3 parts of water.

Extractum Secalis cornuti, s. Extr. hæmostaticum, s. Ergotinum. 1 part of coarsely powdered ergot is twice macerated for six hours with 2 parts of distilled water; the mixed infusions are evaporated to the consistence of a thin syrup, to which 1 part of 68 per cent. alcohol is added, the mixture being filtered, after standing one day, and evaporated.

Extractum Strychni aquosum, s. Nucum vomicarum aquosum. 1 p. of coarsely powdered nux vomica is treated with 4 parts, afterwards with 3 parts of boiling water, and each time macerated for twenty-four hours. The strained infusions are mixed, evaporated to dryness and powdered.

Note. Aqueous extract of nux vomica is regarded to be about one-fourth the strength of the alcoholic extract.

(To be continued.)

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Water in Volatile Oils.—George Leuchs observed that volatile oils, which have been obtained by distillation with water, contain water even if perfectly clear. On mixing them with petroleum-benzin, a turbidity is produced by the separation of water. The volatile oils of lavender, cloves, spike, cinnamon, rosemary, sassafras and juniper were found to contain water; also oil of lemon and bergamot. Mere traces of water were observed in Portugal and wintergreen oil, while the oils of turpentine, cedar, lemon, rue and amber were found free of water.—*Journal f. prakt. Chemie*, 1872, 159.

Process for bleaching the oils of rapeseed, poppyseed and flaxseed.—C. Puscher recommends to mix 100 kilograms of the oil with 2 kilograms of a mixture obtained from equal weights of 96 per cent. alcohol and sulphuric acid. The sulphovinic acid mixes uniformly with the oil, the mixture soon shows a green turbidity, which afterwards becomes black, and in 24 to 48 hours separates as a black sediment. Poppy- and rapeseed oils are now colorless, while linseed oil shows in thick layers merely a yellowish tint. The decanted oils require to be washed by agitation with hot water, to remove traces of sulphuric acid.—*Chem. Centralbl.*, 1872, No. 52, from *Bayr. Ind. u. Gew. Bl.*, 1872.

Corks saturated with paraffin are used for corking bottles containing alcoholic or caustic liquids. Ruschhaupt prepares them as follows: Paraffin is fused in a suitable vessel, the dry corks are added and immersed in the paraffin by means of a perforated cover or disc. The air is now easily expelled from the pores of the corks, which, after about five minutes, are removed and cooled; they may now be cut and bored like wax, are easily driven into the necks of bottles and readily removed, retain their smoothness and are gas-tight throughout.—*Apoth. Zeitung*, 1872, No. 50.

A new remedy for tooth-ache is recommended by Dr. Dop, who injects into the gum near the aching tooth some chloroform, of which two drops are usually sufficient for the severest cases. Occasionally a second injection becomes necessary, which is always successful.—*Ibid.*, 1873, No. 1, from *Revue med. de Toulouse*, 1872.

Glycerin lemonade in diabetes mellitus.—O. Schultzen recommends the following, which is to be taken during the day: Glycerin 20 to 50 grams, water 1000, citric or tartaric acid 5 grm.—*Ibid.*, No. 2.

Ferrous sulphate, precipitated by alcohol, was stated by Barckhausen* to contain less water of crystallization than the crystallized salt. L. Caro has analyzed this salt, and found it to contain seven molecules of water, the same as the crystallized preparation. By titration with permanganate, he found it of the same composition after a month's exposure to the atmosphere.—*Annalen d. Chem. u. Pharm.*, clxv, 29—32.

The water air pump.—Prof. R. Bunsen publishes a card, in which he states that the discovery of the fact that, by columns of liquids flowing downwards a more perfect vacuum can be obtained than by other means, belongs solely to Dr. Sprengel, who published his researches in the Journal of the Chemical Society January, 1865; in his paper on filtration under pressure, published in 1868, he gave due credit to the inventor.—*Ibid.*, 159, 160.

Oxalate of iron is recommended by Dr. Girard for medicinal purposes, and a report on this preparation, by M. E. Caventou, is published in *Journal de Pharmacie et de Chimie*, 1873, 61, 63.

This salt, which is now officinal in the United States Pharmacopœia, has been employed medicinally in this country for a number of years, and was first recommended by Dr. G. O. Schæffer, of Washington, D. C., in 1854. See Proceedings of the American Pharmaceutical Association, 1867, page 407, and 1869, page 389.

ON THE YIELD OF DRY MATERIAL FROM FRESH VEGETABLES.

By Dr. G. C. Wittstein.

The author gives in his Vierteljahres Schrift, 1873, p. 106, the following table, compiled from memoranda of his own observations made in 1828 and 1829. The yield is given for the air-dry material obtained from one part of the fresh.

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* American Journal of Pharmacy, 1872, p. 163.

Flowers.

	Yield.	Collected in		Yield.	Collected in
Achillea millefolium,	$\frac{3}{10}$	July.	Primula officinalis,	$\frac{1}{5}$	May.
Convallaria majalis,	$\frac{1}{4}$	May.	Rosa gallica,	$\frac{1}{6}$	July.
Matricaria chamomilla,	$\frac{1}{4}$–$\frac{1}{5}$	June.	Tilia europæa,	$\frac{1}{3}$	July.
Papaver rhœas,	$\frac{1}{8}$	July.	Verbascum thapsus,	$\frac{1}{5}$	July.

Herbs and Leaves.

Achillea millefolium,	$\frac{1}{6}$	June.	Mentha crispa,	$\frac{1}{5}$	July.
Arnica montana,	$\frac{1}{5}$–$\frac{1}{6}$	May.	Mentha piperita,	$\frac{1}{4}$	July.
Artemisia absinthium,	$\frac{1}{4}$	July.	Menyanthes trifoliata,	$\frac{1}{5}$	May.
Atropa belladonna,	$\frac{1}{6}$	June.	Origanum majorana,	$\frac{1}{4}$	July.
Cnicus benedictus,	$\frac{1}{4}$	August.	Tanacetum vulgare,	$\frac{1}{6}$	June.
Conium maculatum,	$\frac{1}{7}$	June.	Taraxacum dens-leonis, (with the root),	$\frac{1}{6}$	May.
Digitalis purpurea,	$\frac{1}{4}$	May.	Tussilago farfara,	$\frac{1}{5}$	May.
Erythræa centaurium,	$\frac{1}{3}$	July.	Veronica officinalis,	$\frac{1}{4}$	June.
Malva sylvestris,	$\frac{1}{3}$	June.			

Roots and Rhizomes.

Acorus calamus,	$\frac{1}{3}$	April.	Scrophularia nodosa,	$\frac{1}{6}$	May.
Arctium lappa,	$\frac{1}{7}$	May.	Symphytum officinale,	$\frac{1}{5}$	May.
Polypodium vulgare,	$\frac{2}{5}$	April.	Tormentilla erecta,	$\frac{1}{3}$	May.

Branches.			*Young Shoots.*		
Solanum dulcamara,	$\frac{3}{7}$	March.	Pinus sylvestris,	$\frac{1}{3}$	May.

STRIATED IPECACUANHAS.*

By M. Planchon.

It is known that writers on materia medica designate under the name of "striated ipecacuanha" emetic roots which are distinguished from other sorts of ipecacuanha by the longitudinal striæ that mark their surface. This kind appeared to be perfectly characterized and its history cleared up, when some years since there appeared a memoir by M. Vogl† upon the ipecacuanhas in the pharmacological collection at Vienna. While comparing the species described in that memoir with those in the collection of M. Guibourt, it appeared to me that the same name had been attributed to different species. A striated ipecacuanha which I met with about the same time at the Pharmacie Centrale of M. Dorvault confirmed me in the opinion that this question was worthy of investigation, and I engaged several of our students successively to deal with it in their inaugural theses. M. Georges Durand,* in examining the structure of various kinds of ipecacuanhas, pointed out that the striated ipecacuanha of Vogl did not correspond in its anatomical characters to those of the sort so named in the Guibourt collection. M. Thénot,† *préparateur* of natural history in the School of Pharmacy, went further, and showed that in the collection of the school there existed in reality two species of striated ipecacuanha differing considerably in their anatomical characters. This result was afterwards confirmed by M. Charles Menier,‡ who, passing in review all the true and false species of ipecacuanhas, submitted them to a microscopical examination.

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* Translated from the Journ. de Pharm. et de Chimie [4], xvi, p. 404.

† Vogl, Zeitschrift des oesterr. Apothekervereins; Wiggers and Husemann, Jahresb. d. Pharmacognosie, 1867, p. 64.

It thus appeared from these researches that, under the name of striated ipecacuanha, writers have generally confounded two very distinct roots. It is to these species I therefore would wish to refer, in order to indicate their characters, investigate their botanical origin, and establish exactly their synonymy.

The two sorts are so different in their dimensions that they may be designated respectively the major and the minor striated ipecacuanha.

1. *The Major Striated Ipecacuanha.*—This ipecacuanha is met with in moderately long fragments, sometimes attaining a length of nine or ten centimetres. The diameter varies between five and nine millimetres. The fragments are sometimes rectilinear, sometimes sinuous, more rarely tortuous. At rather distant intervals they are marked by contractions or simply circular interstices. The whole of the surface is rather coarsely striated longitudinally. On the upper side the roots often bear the base of several stems, distinguishable by their much smoother surface. The color of this ipecacuanha is a tawny grey, tending sometimes towards a reddish-brown,

As in the other species of ipecacuanha, a section of this root reveals a cortical portion and a ligneous meditullium. The cortical portion is soft enough to allow of its being marked by the finger nail.

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* Etude des différentes racines d'Ipécacuanha du Commerce (Thèses de l'Ecole de Pharmacie de Paris, 1870).

† De la Cellule Végétale; de son importance au point de vue de la matière medicale (Ibid., 1870).

‡ Des Ipécacuanhas (Ibid., 1871).

It has a horny appearance, and is rather variable in color, being sometimes whitish, and passing by shades of rose and violet to a violet black. Its thickness is relatively considerable, at least two thirds of the radius, and it becomes still more so when the root is placed in water, which causes it to swell freely. The meditullium is of a yellowish-white color. The odor of the root is not very marked. The taste is scarcely nauseous, being sometimes insipid and frequently sweetish.

A microscopical examination of the cortical portion shows beneath five or six layers of tubular cells, with brownish walls, a parenchyma formed of large polygonal cells. These cells become smaller as they approach the ligneous meditullium; they become pretty regularly hexagonal, and form series radiating almost rectilinearly. They are entirely free from starch; a certain number of them contain bundles of raphides, and all are filled with an amorphous substance soluble in water, and capable of reducing cupro-potassic solution. The ligneous meditullium consists of fibres with incrusted sides arranged in radiating series, between which are interposed vessels with very narrow openings, not exceeding the diameter of the ligneous fibres. It contains no trace of starch.

The salient characters resulting from this examination, and which may be regarded as distinctive from those of the second species of striated ipecacuanha, are (1) the complete absence of starch, (2) the relatively small diameter of the vessels of the meditullium, (3) the presence of a principle capable of reducing the cupro-potassic reagent. This matter exists in very great quantity in the cortical portion; a simple digestion in water giving a liquid with strong reducing power, but which does not exercise a deviating influence on a ray of polarized light. This substance merits a closer study.*

The major striated ipecacuanha comes from New Granada. It contains but very little emetina; at least so it would appear from the analyses made by M. Dorvault, which confirmed those made by Prof. Attfield,† who attributed to it two and a half per cent. of active principle.

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* Professor Attfield has noticed the presence in this root of 5·39 per cent. of grape sugar, and 34 per cent. cane sugar, or of substances soluble in water and capable of being converted into sugar by boiling with an acid (Pharm. Journ., second series, vol. xi, p. 141).

† Loc. cit.

2. *Minor Striated Ipecacuanha.*—This sort is distinguished from the former by its much smaller dimensions. It is in very short fragments, two or three centimetres or more. Some nearly cylindrical, scarcely constricted, are only two or three millimetres in diameter; others are narrowly fusiform; others again are formed of cylindrical or pyriform segments placed end to end; these are generally thicker and attain a diameter of five or six millimetres. The general color is a grey-brown, darker than that of the first sort. The longitudinal striæ are fine and regular. In a transverse section the cortical portion is as horny and the consistence closer than in the major kind. The meditullium is yellowish, marked with a great number of pores, visible with a glass.

The microscope shows in the cortical portion—(1) a first zone, formed of from seven to nine layers of very narrow tubular cells; (2) a thick parenchyma formed of cells with irregularly sinuous walls, filled with starch, and containing here and there bundles of raphides; (3) a liber zone, in a transverse section of which are seen narrow polygonal fibres and cells ranged in radiating series. The ligneous meditullium is distinguished immediately by the dimensions of the vessels, which give a porous appearance to this part, and which stand out distinctly by their size from the woody cells surrounding them.

The salient microscopic characters of this species are (1) the presence of starch, (2) the relative development of the liber zone, (3) the size of the vessels in the middle of the woody layer.

This sort of striated ipecacuanha contains a much larger proportion of emetina than the preceding: nine per cent., according to the analysis of Pelletier;* six and a half per cent. of pure emetina, according to Attfield.†

It will be seen that the two preceding species are perfectly distinct in some of their anatomical characters. Let us try and complete their history, profiting by the data above given.

First, what is their botanical origin? It is known that writers on materia medica have referred the striated ipecacuanha to a New Granada plant, sent by Mutis to Linnæus, and described by him under the name of *Psychotria emetica.* Which of the two commercial kinds of striated ipecacuanha are obtained from this species? An examination of the roots ought to clear up this question. M. Triana, on the one hand, and M. Posada, on the other, have kindly furnished me with specimens of these roots, taken from the living plant. These specimens, coming from different sources, have both the outward appearance and anatomical structure of the major striated ipecacuanha. So that in this respect the question is completely settled.

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* Journ. de Pharm., vol. vi, p. 261.

† Pharm Journ. [2], vol. xi, p. 141.

As to the origin of the second sort, I am obliged to remain in doubt. Its structure appears to differ too much from that of the roots of *Psychotria* to allow of its being referred to a species of the same genus. It presents anatomical characters approaching to those of the white or undulated ipecacuanha, which is referred to *Richardsonia scabra*, St. Hil.: and I should not be surprised if it were to a plant of this genus, or at least of a very near genus, that this commercial sort owes its origin. I incline the more to this opinion, since some specimens appear, as it were, intermediate between the minor striated ipecacuanha and the undulated ipecacuanha. I have in my possession some fragments sent to me by Mr. Hanbury, labelled "Spurious Ipecacuanha.—*Richardsonia scabra*." Now, the smallest of these fragments recall the minor striated ipecacuanha, whilst the larger approach more nearly undulated ipecacuanha. But I will not dwell further upon a point which at present can only be matter for conjecture.—*Pharm. Journ., Lond., Jan.* 4, 1873.

THE MANIOC, OR TAPIOCA PLANT.*

By M. Paul Sagot.

Tapioca is obtained from the Manioc, or Cassava, a suffrutescent plant belonging to the Order Euphorbiaceæ, which has long been cultivated by the indigenous Indians of Guiana and intertropical America. It is the *Jatropha Manihot* of Linnæus, and the *Manihot utilissima* and *Manihot Aipi* of Pohl. By the Indians it is known under various names; the Caribs call it *Kière* and *canhim;* the Galibi, *Kie ray;* the Arrouagoue, *calôli.* In the Antilles, the Spanish colonies, New Granada, Peru, and Pará it is called *yuca;* in Brazil *mandiocca* and *maniba* and *aïpi* (sweet manioc); in Mexico it is called *tziim.* A great number of varieties have been observed under cultivation, each of them permanent, although sometimes closely resembling another variety, and each distinguished by some particular quality. Botanists have not yet met with any form of the cultivated manioc in a wild state; but in Brazil, Guiana and Venezuela many undoubtedly spontaneous species of the genus *Manihot* exist, and some of them resemble the cultivated varieties very closely. The province of Goyaz in Brazil produces the largest number of species, and amongst those offering the closest points of resemblance are *M. pusilla*, *M. flabellifolia*, *M. digitiformis* and *M. triphylla*. Pohl describes the sweet (non-poisonous) manihot (called *Aïpi* in Brazil, *M. Aïpi*, Pohl), as a distinct species from the poisonous manihot (*Yuca brava* or *Mandioca brava* of the Spanish and Portugese colonies); but the author agrees with Goudot in thinking that they are only varieties of the same species.

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* Abstracted from a paper read before the Société Botanique de France, Dec. 18th, 1871 (Bull. de Soc. Bot. Fr. xviii, 341).

The manioc or cassava plant is propagated by cuttings which grow with extreme facility. The plant appears at first as a straight stem, furnished with large digitate leaves, with about seven lobes. At the age of from six to ten months, and when from one to two metres high, it throws off from its summit lateral branches, with smaller leaves, and shortly afterwards bears flowers. The root then commences to develop several elongated amylaceous tubers, which continue to grow underground as long as the branches yield leaves and flowers. At the end of a year and a half or two years the roots are ready for collection; but if not wanted may be left in the ground for some time, provided they be watched that they do not rot. On the other hand, they may, if required, be gathered earlier, but the yield is not so good. The stalks, which are planted about a metre apart, usually produce two or three tubers, varying in size and weighing together from one to three kilograms. The plant is not very choice as to soil, but flourishes most in freshly cleared ground, and prefers well-drained spots, an excess of moisture causing it to rot. Although living for two or three years, the plant is not strictly a perennial, since it becomes gradually exhausted as the tubers attain their full size. The sweet manihot is usually gathered earlier, since the root becomes hard and bad if left to develop too much.

The yield of the manioc root, considering the time it occupies the ground, when compared with other farinaceous roots is not great; but on the other hand, it contains less water than any other starchy root; —when mature, less than sixty per cent. Its texture is very dense and compact. It contains much starch, and its richness in albumen and other nitrogenized matters is estimated at two per cent. In converting the roots into an edible flour, they are scraped, peeled, and then washed; next they are rasped upon a wooden plank armed with small iron teeth, and the pulp is left twenty-four hours, by which time a slight fermentation is set up. It is then placed in a long, flexible basket, called a *couleuvre*, usually made of plaited rushes. The *couleuvre* is suspended by a handle at its open end, and a heavy weight is attached to the other end, by which means the sides are compressed together, and a slightly opaline aqueous juice, which is highly poisonous, is caused to ooze through the plaits. The pressed meal is then taken out and exposed for some time over a fire; afterwards pounded, coarsely sifted and roasted on a brass plate over a fire to upwards of 100° C., care being taken by constant renewals to prevent scorching. Sometimes during the roasting it is stirred to and fro with a small rake of wood or metal; it is then formed into small hard grains, having the appearance of semolina, which are called *couac*. When *cassava* is to be prepared, the meal is more carefully pounded and better sifted. It is then spread circularly upon the plate, pressed slightly with a pallet knife to cause it to aggregate and turned two or three times during the roasting. In both operations there is complete cooking and desiccation effected, which enables it to be kept an almost indefinite time. The aggregation of the meal is caused, not by the addition of water, but by the action of heat, softening and agglutinating some of the particles of starch.

M. Sagot considers the manioc to be healthy food, although of small nutritive value. Dr. Schier estimates it to contain 0·18 per cent. of nitrogen, but little phosphorus, and a very small quantity of fatty matter. The indigenous tribes, who make it the basis of their food, supplement it with a good quantity of fish and meat.

In the preparation of tapioca, the root is rasped and diluted with water, in which it is well worked up; the grosser parts are removed and the finer allowed to be deposited by subsidence in the water. In this form it is imported into this country in considerable quantities as Brazilian arrow-root. The tapioca is produced by roasting this starch on metal plates, stirring it the while with an iron rod; the starch grains burst, some of the starch is converted into dextrin, and the whole agglomerates into small irregular masses.

In Demerara, the manioc juice, deprived by boiling of its injurious properties, is used under the name of *cassareep*, as a sauce for the table. Besides this, the Indians use the root of the manioc to prepare fermented drinks, which, however, would hardly suit European tastes.

It is probable, M. Sagot thinks, that the poison present in the manioc is an instable organic compound, hurtful in itself, but especially dangerous from the fact that, under certain conditions, it will engender hydrocyanic acid. The leaves when bruised exhale a smell of bitter almonds, and the presence of prussic acid in the roots has been established. This he considers to explain the fact that while the manioc water, especially when distilled, is very poisonous, in Guiana and Brazil the Indians, after boiling it and removing the scum, use it as a beverage. Although wild animals, too, are sometimes poisoned through eating the leaves, sometimes they are not; this, he thinks, occurs when, a small quantity being eaten, the gastric juice exercises an energetic action before hydrocyanic acid can be developed.

The sweet cassava, or Camanioc, contains so small a quantity of acrid principles that the roots are cooked at a fire and eaten like potatoes. It is a rapid growing variety, becoming ripe in five or six months, and in two or three months more the roots become hard and unfit to eat. The bark of the stalk is white, the petioles of the leaves are of a fine purple-red color, and the luxuriant leaves at the foot of stalk are 7-partite. The tubercles are long and of small diameter; when cooked in the ashes of a fire they are agreeable to the taste, sweet and of a fine consistence.—*Pharm. Journ.* (*London*), *Jan.* 18, 1873.

THE NEW THEORY OF FERMENTATION.

The indefatigable Pasteur again comes upon the stage with a series of experiments to prove the accuracy of his theory of fermentation. He claims that grape juice, when exposed to the action of the air, or of oxygen, never of itself alone undergoes alcoholic fermentation, but that this only happens when those particles of dust, or germs of ferment, which are present both in the grape and the woody stem, are introduced into the must.

The method of experimenting is very simple in theory and perfectly convincing. It is as follows:

Forty glass bulbs were taken, with tubes bent downward to prevent dust falling into them. On the side was a neck fitted with rubber tubing and glass stopper, through which at a given moment the material could be introduced.

These 40 bulbs were filled with an easily fermentescible substance which had been previously boiled, and were divided into four series, of 10 flasks each. Those of the first series contained nothing but the above-mentioned easily fermentescible liquid; the bulbs in the second series had added to this fermentescible liquid a few drops of must or grape juice, taken from the interior of the grape in such a manner as not to come into contact with the dust on the outside of the grape. To the fermentescible liquid in the bulbs of the third series was added a small quantity of the water in which the grapes and stems had been washed and afterwards boiled. To the liquid in three of the fourth series was added some of the water used to wash the grape, and which contained the dust and germs, but had not been boiled. When these preparations were completed, the bulbs were left to themselves and to the action of the surrounding air, in a room of a suitable temperature, or in a bath artificially heated to the temperature most favorable to fermentation.

The result is very surprising, for it was found that the liquid in the first three series, with rare exceptions, had not undergone fermentation; but in the 10 bulbs of the fourth series a very violent fermentation had taken place.

To Pasteur belongs the uncontested honor of being the first to discover that the organisms, in nature, are divided into two classes:

The first class consists of germs visible to the naked eye, and in order to live they require oxygen either free or combined.

The second class embraces microscopic organisms, such as germs of ferment; oxygen acts as a poison on these, but becomes a source of life if derived from a compound like carbonic acid.

It has long been a well-known fact that, in fruits taken from the tree and exposed to the air, the vital process goes on in the ordinary manner; they absorb oxygen from the surrounding air and give off carbonic acid. They ripen because the saccharine matter is produced in them without undergoing fermentation.

This premise being established, Pasteur took some fruit, namely, a peach and a plum, and placed them under a bell jar containing carbonic acid; the fruit lost its vitality—its whole life, outer and inner, ceased, because it could not take up and assimilate oxygen from the atmosphere surrounding it. The fruit began another and a new life, which developed itself outward from the interior, and is, so to speak, similar to the life of the atoms, in the sense that the cellular tissue takes away the necessary oxygen from the saccharine matter and other substances present, in the manner of a perfect alcoholic fermentation. The fruit gets soft, it becomes wet through continually, and, if distilled, pure alcohol is obtained and carbonic acid becomes free.

Pasteur repeatedly recurs to these facts, for they are the basis of a discovery of endless importance, and are of greater weight because they will form the connecting link between theories at present opposed to each other.

At the first glance we might suppose that this second discovery was a contradiction of the first, and that the views of Liebig and Fremy—that ferment germs and fermentation itself develop spontaneously in organisms of themselves, without any action from without—were correct; but Pasteur insists that he will soon complete his observations and make all clear.—*Journ. Applied Chem.*, *Feb.*, 1873.

THE AMOUNT OF CAFFEINA CONTAINED IN COFFEE, AND ON ITS PHYSIOLOGICAL ACTION.

By Hermann Aubert.

Although the quantity of caffeina contained in raw coffee is known, no attempt has ever been made to ascertain how much of the alkaloid is contained in a cup of coffee, and it is also uncertain whether the beans should be slightly or strongly roasted, and whether the ground coffee must be boiled to extract its active principles or simple infusion is sufficient. By extracting the coffee with water, either by percolation or decoction, and evaporating to a syrup, which is then treated from five to eight times with chloroform at nearly 60° till all the caffeina has been dissolved out, he obtains a larger quantity than previous experimenters. Raw beans of the yellow Java kind yielded 0·709—0.849 per cent. by this method, while they gave only 0·474 by Garot's method of precipitation with basic lead acetate. When much roasted, coffee loses a certain quantity of caffeina which sublimes, whereas it loses none by slight roasting. Notwithstanding this, the coffee made in the usual way by percolation from strongly roasted coffee contains rather more caffeina than that made from an equal weight of slightly roasted coffee, as the roasting renders it more easy to extract.

When coffee is prepared in the usual domestic fashion by pouring six to ten times its weight of boiling water three or four times over ground coffee, nearly the whole of the caffeina is extracted, hardly one-fifth of it remaining in the grounds. The quantity of caffeina in a cup of coffee prepared from 16⅔ grams of coffee is about 0.1 to 0·12 gram. A cup of tea prepared in the ordinary way from 5-6 grams of Pekoe tea contains also about 0·1 to 0·12 grams of caffeina. Caffeina acts upon the spinal cord and causes tetanus in doses of 0·005 gram for frog, injected subcutaneously; for a rabbit, 0·120 gram (injected into the jugular vein); for cats, 0·200, injected in the same way; and the same quantity for dogs. It has a peculiar action on the muscles of frogs, especially when directly applied to them, causing them to become rigid and white, apparently from coagulation of the myosin. It does not exert this action on the muscles of mammalia. The tetanus is removed by artificial respiration, and if this process is kept up for about a quarter of an hour, no recurrence of the tetanus takes place, even though the respiration is then discontinued, showing that the caffeina is quickly eliminated or destroyed in the organism. Occasionally it produces a paralysis of the hind legs in rabbits, but the author is uncertain to what cause this is to be attributed. It quickens the heart and at the same time reduces the blood pressure. The effect he believes to be due to stimulation of the cardiac ganglia, combined with diminution of what he regards as cardiac *tone*, due to paralysis of the nerves passing from these ganglia to the muscular substance.

The action of caffeina does not explain the stimulating and reviving action of coffee.—*The Pharm. Journ. and Trans., Dec.* 21, from *Journ. Chem. Society.*

RESEARCHES UPON SANTONIN.*

By M. L. De Saint-Martin.

Santonin is the active principle of *Semen contra*, and has been prepared for some years past, upon a large scale, for therapeutic use. The reactions of this principle have, however, as yet been little studied. It remained outside any methodic classification until Berthelot, in his *Traité Elémentaire de Chimie Organique*, included it in the grand class of organic compounds which in 1860 he instituted under the name of phenols. The author, therefore, undertook an investigation in order to ascertain its chemical relations. The investigation included its reactions with reducing, oxidizing and decomposing agents; but the present paper only deals with some reducing experiments.

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* Memoir read before the Academie des Sciences, Nov. 11th, 1872 (Comptes Rendus, lxxv, 1190).

If santonin be really a phenol, its formula $C_{15}H_{18}O_3$ indicates that it should be possible by its methodical reduction to obtain—

(1) A diatomic phenol ($C_{15}H_{18}O_2$);

(2) A monatomic phenol ($C_{15}H_{18}O$);

(3) A carbide of hydrogen ($C_{15}H_{18}$).

This last carbide would present the composition of a homologue of naphthalin, isomeric or identical with amylnaphthalin.

The author has succeeded in obtaining the monatomic phenol ($C_{15}H_{18}O$); and he hopes to obtain shortly the other terms of the series.

The monatomic phenol, to which compound the author has given the name of santonol, was obtained by introducing into a long green glass tube, between two plugs of asbestos, a mixture of one part of santonin and four parts of zinc in powder, and heating it over a gas stove, in a current of hydrogen. A thick yellowish-brown liquid condensed in the cool parts of the tube, which, after a few days, was full of crystals. This crude product was neutral to litmus, insoluble in water, very soluble in alcohol and ether; treated with solution of potash in suitable proportions it dissolved completely. An excess of potash separated, under an oily form, potassic santonalate. This compound, or an analogous body very rich in potash, was also precipitated as an oily liquid when the original solution was diluted with pure water. Treated with an acid it reproduced santonol. These properties, and various others undescribed, show that the product was constituted by a body analogous to the phenols.

But the crude product of the reaction was not a pure substance. In fact, the crystals and the mother-liquor presented a different composition. The first answered nearly to the theoretical formula $C_{15}H_{18}O$, while the mother-liquor contained much less carbon, perhaps because of the presence of the compound $C_{15}H_{18}O_2$, intermediate between santonol and santonin. The crude product was therefore redistilled, which operation was effected without difficulty at about the boiling-point of mercury. The distilled liquid still separated into two portions, the one crystallized, and the other liquid; these were analyzed separately, and found to be isomeric.

The crystallized santonol had the appearance of the stearin which separates in the fatty bodies. After being purified as much as possible by pressure, it acquires a tolerable degree of hardness. Its fusing-point was about 135° C. It was insoluble in water, very soluble in alcohol and ether. Sulphuric acid formed with it a compound sulpho-acid, of which the salt of baryta was soluble. Analysis gave—

	Found.		Calculated.
C	83·9	83·8	84·1
H	8·8	8·9	8·4
O (difference) .	7·3	7·3	7·5
	100·0	100·0	100·0

The liquid santonol was a very unstable substance, which turned brown under the influence of the air. Like its solid isomer, it was insoluble in water and very soluble in alcohol and ether. Its properties are difficult to define individually, because it was evidently saturated with solid santonol. Analysis gave—

	Found.	Calculated.
C	84·1	84.1
H	8·9	8·4
O (difference) . .	7·0	7·5
	100·0	100·0

The author is continuing his investigations of this body, and of the other derivatives of santonin.—*Pharm. Journ. and Trans., Dec.* 28, 1872.

IODIZED ALBUMEN AND IODIZED ALBUMEN WITH FERRIC CITRATE.

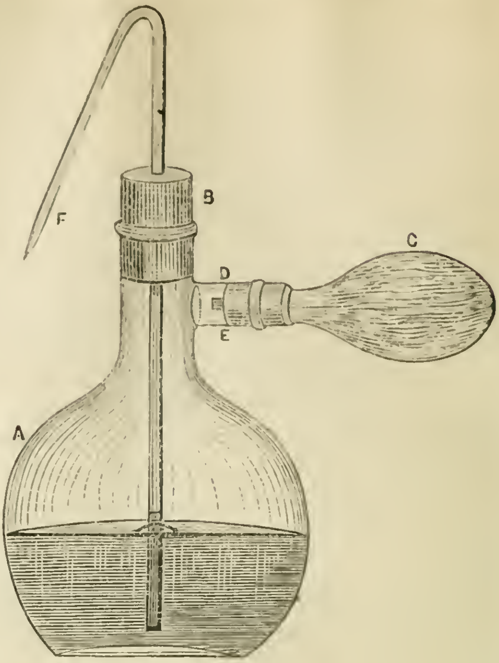
Professor Luigi Guerri, of Florence, has been studying the question whether it be possible to employ the white of egg to prevent the decomposition of ferrous iodide, and to obtain a combination which should contain one part of iodine to five parts of oxide of iron. In order to investigate the action of iodine upon albumen, Professor Guerri saturated it with dilute phosphoric acid, collected the liquid, evaporated the solution of albumen to 3° Beaumé, and afterwards added finely divided iodine, obtained by precipitating tincture of iodine with water. This caused the albumen to turn red, but after some time, when stirred, it regained its primitive color. These changes of color occurred repeatedly after additions of iodine, until at length the red color remained persistent and mucilage of starch was colored blue. When this point was attained the liquid was agitated, and, after standing ten or twelve hours, it again regained its original color; it then no longer gave the reaction with starch, except under the influence of chlorine water or nitric acid containing hyponitric acid. Even these were not sufficient to set free some portion of the iodine, it being necessary to incinerate with potash in order to obtain it in the state of iodide of potash. Professor Guerri found afterwards that even during the evaporation of the albumen to dryness the iodine remained in combination, and that during the process some white flakes appeared, which separated upon standing, and redissolved in a very small quantity of potash.

According to careful experiments of Professor Guerri, 100 parts ot this iodized albumen, that had been dried at 60° C., contained 3·132 parts of iodine; and 474 parts of solution of albumen of 3° Beaumé density, when so evaporated yielded 31·928 parts of iodized albumen, whilst 31·928 parts of iodized albumen contained 1 part of iodine. The iodized albumen forms yellow transparent scales, soluble in water, with the exception of a few flakes which are not dissolved by acetic acid or phosphoric acid, but are dissolved by alkalies. The solution is precipitated by alcohol, is neutral, and gives no iodine reaction.

In order to obtain a ferruginous preparation of the strength before mentioned, Professor Guerri dissolved 18 parts of ferric citrate—corresponding to five parts of ferric oxide—in 474 parts of solution of albumen 3° Beaumé density, previously iodized, and evaporated the solution at a temperature of 60° C., to dryness. This gave 50 parts of a compound containing one-third of ferric citrate and two-thirds of iodized albumen. The product so obtained has the appearance of ferric citrate, but is a little yellower. The solution comports itself similarly to the iodized albumen. The iron is not separated from it by alkalies, or by ferrocyanide of potassium, but is separated by the alkaline sulphides.

Each of these preparations is easily formed into a pill mass with simple syrup, as well as with extracts not containing much tannic acid. They can also be administered in powder.—*Pharm. Jour. and Trans.*, *Dec.* 14, from *L'Union Pharm.*, 1872, 289.

LAND'S IMPROVED ATMOSPHERIC WASHING BOTTLE.



We present a cut of an improved form of 'Washing Bottle,' for the use of analytical chemists. It may be described as follows:

A flat bottom Bohemian flask, A (of about one litre capacity), has a branch opening, D. on its neck, as represented; into the mouth of this opening is inserted a caoutchouc stopper, E, through which a piece of strong glass tube projects (for one inch). at its outer end; over this tube the india-rubber syringe bulb, C, is slipped, and secured by binding with wire or twine.

The glass tube or 'jet tube,' F, passes in the usual manner through the larger india-rubber stopper, B, and extends nearly to the bottom of the vessel. When using the bottle it is supported by placing the middle or second joint of the index finger under the lateral tube at E while the bulb, C, comes into the palm of the hand, and may be pressed to the desired extent, forcing a fine stream of the distilled water from F with any required force. Upon relieving the bulb of the pressure, it takes air through the tube F very quickly.

This improved bottle obviates the inconvenience of blowing with the mouth (which often contaminates the water), and it furnishes a fine stream of water, perfectly under the control of the operator. Its convenience and cleanliness must yet be universally acknowledged. This form of bottle was devised by Wm. J. Land, analytical chemist, Atlanta, Ga., more than five years ago; he has had several of these bottles in constant use ever since, and makes known its merits at the suggestion of several professional friends. Any chemist can easily construct the apparatus, or it may be purchased of dealers in chemical apparatus.—*Amer. Chemist, Dec.*, 1872.

DETECTION AND ESTIMATION OF PARAFFIN IN STEARIN CANDLES.

By M. Hock.

Makers of stearin candles mix paraffin with the fatty mass in quantities up to 20 per cent. Paraffin candle makers also mix stearic acid with their paraffin, and attribute valuable properties to such a mixture, so far as candle-making is concerned. The attempt to determine if paraffin be present, and if so, to get some approximate idea of the quantity, in a sample of stearin and *vice versa*, by means of the comparison of the melting-point and specific gravity of such a mixture, is shown to be useless, as these vary according to the source from which the paraffin is obtained, as also in the case of the stearic acid, since the pure commercial article is by no means a chemically pure article.

A good method of detecting the presence of stearic acid in paraffin has been devised by R. Wagner, viz., by treating a boiling solution of the paraffin in alcohol with an alcoholic solution of neutral acetate of lead, when, if stearic acid be present, a dense floccular precipitate appears, but none if it be absent. The best method, and one which can be used quantitatively as well as qualitatively, is described as follows:

Not less than 5 grms. of the candle are taken and treated with warm solution of hydrate of potash, which must not be too concentrated. A soap is formed with the stearic acid, whilst the paraffin is left unaltered. Salt is thrown into the solution, whereby the soap is separated out as a soda soap, and in precipitating takes down the paraffin with it. The soap obtained is thrown on the filter and washed with cold water or very dilute spirits of wine. Thus, firstly, the salt is washed out, and, finally, the soap is brought into solution and likewise washed through the filter, leaving the paraffin, which is then dried at a temperature below 35° C., so as not to fuse it. The paraffin is then treated on the filter with ether, and after repeated washing with this solvent, the ethereal solution is carefully evaporated in a weighed porcelain crucible, in the water-bath, at a low temperature.

The residue, consisting of the paraffin, is then weighed, and the stearic acid is estimated by difference.—*Chem. News, Lond., Jan.* 10, 1873.

EXPLOSIVE MIXTURE OF NITRATE OF POTASH AND ACETATE OF SODA.*

By M. Violette.

An accident in the author's laboratory made known to him a singular reaction between nitrate of potash and acetate of soda, which, under the influence of heat, constitutes an explosive mixture equal in force to gunpowder. In some researches upon saltpetre he had heated moderately in a small phial a few grams each of nitrate of soda and acetate of soda, both previously fused and anhydrous. The two salts melted formed a colorless and transparent liquid, which gave off a few gaseous bubbles. At the same moment, a violent explosion occurred, accompanied by flame and smoke, which scattered the phial in fragments all over the laboratory; a fresh gaseous combination between the elements of the salts had taken place, leaving a slight residue of alkaline carbonate.

In repeating the experiment a gram of nitrate of potash was melted in a small platinum capsule at a gentle heat, and a gram of acetate of soda previously fused added to it. At a temperature of about 300° C the mixture remained fluid, transparent and without alteration as long as the temperature remained constant: upon raising it to about 350° C. there was a slight ebullition followed instantly by a loud explosion, with light and smoke, similar to that of gunpowder. As before, there was a slight residue of alkaline carbonates. The same result followed when a substance in ignition without flame was plunged into the liquid at 300° C.

If the melted mixture be poured upon a cold surface a white substance is obtained, which is hard, brittle, rather hygroscopic, more fusible than nitrate of potash, and being melted explodes violently. In the solid form it does not burn when placed in contact with an ignited body; but reduced to fine powder, it deflagrates violently upon the application of a flame.

The explosive properties of the mixture are only developed when the nitrate of potash and acetate of soda are present in certain proportions—from 50 to 100 parts of the acetate to 100 parts of the nitrate—the most explosible mixture being 100 parts of the fused nitrate to 60 parts of the fused acetate. When the nitrate is in excess, the combustion is only partial and of short duration: when the acetate is in excess, the mixture burns slowly and similarly to a light wood.

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* Journal de Pharmacie et de Chimie, xvi, 333.

A mixture of nitrate of soda and acetate of potash was found to have the same explosive properties, but to be more hygroscopic. Mixtures of nitrate of potash with the acetates of copper and baryta did not yield an explosive product.—*Pharm. Journ. and Trans. Jan.* 11, 1873.

Varieties.

Croton Chloral in Painful Affections of the Fifth Nerve.—It is perhaps surprising that a remedy whose action was several months ago declared to be of so extraordinary a character should have received so little attention at the hands of the profession, especially when this new medicine promised to be so efficient a weapon against some of the most painful diseases known to physicians. Beyond one or two pharmacological notices, the substance seems to have been altogether passed by.

The hydrate of croton chloral was made by Krämer and Pinner, by the action of alkalies upon dichlorallyl and formic acid. Its physiological action was investigated by O. Liebreich. He found that in animals it produced a deep anæsthesia of the head, without any loss of sensibility of the body Death was caused by a paralysis of the medulla oblongata. In man, an anæsthesia of the fifth nerve only was noticed. The sensibility of the trunk, and the pulse and respiration, remained unaltered.

Having procured some of this substance, I determined to make observations upon such of my patients at St. Bartholomew's as appeared likely to be benefited by the use of the medicine. I gave it to about twenty persons, nearly all women. They varied in age from seventeen to forty-four. They were all suffering pains in the regions supplied by the fifth nerve,—that is the upper and lower jaw, the face, and the supra-orbital region of the forehead. The pains were paroxysmal. In the majority of the cases they were increased at night. In nearly every one of these cases there were caries of the teeth. In about half there were signs of anæmia. The medicine was given in doses of five, ten and twenty grains, dissolved in water. It was given at night, just before going to bed. In one case, where the pains became aggravated at noon and at bedtime, it was given just before the increase of pain was expected. In all the patients, except two, great relief from pain followed the dose of croton chloral. Some of the patients said that they slept well after it; others, that they did not sleep, but that the pains in the head and face either ceased altogether, or were much diminished. In two cases, both women, the croton chloral was of no use whatever, the pains being aggravated during the use of the medicine; but in the rest of the cases more or less relief was given.

Should the croton chloral be as efficient in the hands of others as it has been in mine, it will prove a most important addition to the materia medica. It will enable the physician to give relief from pain until relief can be afforded by the dentist, or by attention to the general health, and this without any of the general effects of narcotics. It is almost unnecessary to dwell further upon the advantage of possessing such a means.—D. J. W. Legg —*Dental Cosmos, Feb.*, 1873, from *The Lancet*.

Case of Poisoning by Aconite Treated by Digitalis: Recovery.—By William Dobie, L.R.C.S. and P.E., Keighley.—I was requested one morning, between 12 and 1 A.M., to visit a veteran surgeon who was supposed to have taken poison. The place where he lodged was scarcely a hundred yards from my house, and only a few minutes elapsed before I saw the patient. He was stupidly drunk in bed, and unable satisfactorily to answer questions. His landlady, however, informed me that he returned home the worse for drink about midnight; that he went direct to his surgery, took out a bottle of medicine, and went up stairs to bed; that shortly afterwards he rang the bell, and said he had taken a large dose of poison, which was certain in a short time to prove fatal. There was a two-ounce bottle, with its lable defaced, lying by the bedside. The bottle contained about half a drachm of a brown-colored liquid, a portion of which I applied to my tongue, and was satisfied, by the characteristic tingling induced, that it was aconite. Up to this time there were no symptoms of the patient having taken poison. There had been no vomiting, the breathing was natural, the pulse of fair volume and strength, and the extremities were warm. An emetic was prescribed; and, in conjunction with my late partner, Dr. Ramsay, I visited the man again in less than half an hour. By this time he had vomited freely; a considerable discharge had also taken place from the bowels; there was evidence, too, of failing circulation; the pulse was rapid and feeble, and the feet and hands were getting cold. The use of stimulants was clearly indicated; and, in order to give ammonia and brandy, we raised the patient's head. This brought on alarming prostration; the breathing became labored; the pulse, at the wrist, irregular, intermittent, and finally imperceptible; there was a quantity of frothy mucus discharged from the mouth and nostrils; the skin became dusky; a cold clammy sweat bedewed the face and forehead: in a word, the patient was dying. We quickly replaced his head upon the pillow, and, as he was unable to swallow, injected subcutaneously twenty minims of tincture of digitalis, and then applied galvanism to the cardiac region, and continued its use for about twenty minutes, at the end of which period the patient began to rally, and in a few minutes more was able to swallow a mixture of ammonia, brandy, and a teaspoonful of tincture of digitalis. Marked improvement followed the administration of the mixture, and it was twice repeated within an hour, by which time the breathing had become easy, and the circulation re-established. We remained with him about half an hour longer, and, before leaving, gave him a cup of strong coffee, which, however, was vomited. I saw the patient again the following morning, when he expressed his surprise at being alive, as he had taken, he said, an ounce of Fleming's tincture of aconite.—*British Med. Jour.*, *Dec.* 21, 1872.

Abortive Treatment of Boils and Felons.—We find quoted from the *Giorn. dell Acad. Med. di Torino* the following method of treating boils and felons, which Dr. Simon regards as almost infallible: Wherever the boil may be, and of whatever size, so long as suppuration has not commenced, rub it gently with the finger wet with camphorated alcohol, pressing especially on its centre. Do this half a minute at a time for seven or eight times, and then cover the part with camphorated olive oil. If one operation does not produce resolution, repeat it at intervals of six hours. A felon may be bathed ten minutes in camphorated alcohol, then dried and covered with the oil. The writer has never known a felon fail to succumb to three of these operations.—*N. Y. Med. Jour.*, *Feb.*, 1873, from *Gaz. Med. Ital.*, *Nov.*, 1872.

Phosphorescent Mixtures.—Phosphorescent tubes have been sold in France and Germany for several years, but the method of their preparation has not been divulged. Dr. Seelhorst, of Nuremburg, has been experimenting on the subject, and very considerately makes public the best way to secure mixtures that will afford all the colors of the rainbow, and are capable of use in imitations of flowers, insects and objects of natural history. After the powders are prepared they can be stirred into melted paraffin; and, by means of a brush, any pattern or design may be put upon glass. By protecting the glass in a frame the powder will retain the property of glowing for a year or more. The putting of phosphorescent mixtures upon glass in the form of flowers is capable of very beautiful application, and is one that has not been very extensively practised. With proper care and study, a landscape could be drawn on glass which, after exposure to sunlight, would shine in the dark and form a picture of considerable duration. The use of the paraffin is to protect the powders from the action of moisture and prevent decomposition. As a general rule, it is better to hermetically seal the mixtures in flat bottles, when they will retain their good properties for years. The following colors can be obtained very readily:

Green.—Hyposulphite of strontia, heated for fifteen minutes over a Berzelius lamp and for five minutes over a blast lamp till it is fused, yields a yellowish-green color after exposure to sunlight. The same color can be obtained by taking equal parts of carbonate of strontia and *lac sulphuris*, heat gently for 5 minutes, then strongly for 25 minutes over a Bunsen burner, and finally five minutes over a blast. It is granular and yields a fine green color, darker than the preceding.

Blue.—Sulphate of strontia is prepared by precipitating with sulphuric acid from chloride of strontium; the precipitate is dried, heated in a current of hydrogen gas, then over a Bunsen burner for 10 minutes and for 15 to 20 minutes over a blast lamp. The product sometimes yields a yellow phosphorescent light, and when this is the case, it is necessary to give it another turn over the blast lamp.

Yellow.—Sulphate of baryta 6 parts, charcoal 1 part, fused over a blast lamp, at first afforded no light, but after 24 hours gave an orange-yellow light.

It may not be generally known that magnesium light will suffice to bring out all the effects of phosphorescence nearly as well as sunlight.—*Sci. Amer., Feb.* 22, 1873.

Analysis of Commercial Red Phosphorus.—The red phosphorus of commerce, as a rule, is not perfectly pure. It frequently contains more or less ordinary phosphorus, and as this gradually oxidizes in the air, varying quantities of phosphorus and phosphoric acids are formed, which give the commercial article an acid reaction and moist appearance.

The determination of these oxidation products offers no special difficulty, but the separation and determination of the ordinary phosphorus is much less easy, and a series of experiments were necessary in order to discover a good method for determining all the constituents of commercial red phosphorus. Drs. Fresenius and Luck have instituted such a series of experiments and published the method of analysis chosen by them.

The red and ordinary (yellow) phosphorus were both oxidized and determined as pyrophosphate of magnesia. The red and yellow phosphorus were next separated by the bisulphide of carbon, and the weight of the former found. Subtracting the weight of the red phosphorus from the total amount of phosphorus found above, gives the amount of yellow phosphorus. As a check on this, the yellow phosphorus in the bisulphide solution is oxidized with iodine and then converted into pyrophosphate of magnesia.

The following is the average of two analyses :

	Per cent.
Total phosphorus,	93·30
Yellow phosphorus,	0·56
Red phosphorus.	92·63
Phosphorous acid.	1·308
Phosphoric acid,	0·880
Water and impurities,	4·622

—*Journ. Applied Chem., Jan.,* 1873.

Action of Ether upon Iodides—Dr. J. E. de Vry —The author states, in reference to an observation made by Ferrières concerning the decomposition of iodides by ether, that several years ago he tried a similar experiment leading to the same result ; but when the ether of commerce was first thoroughly shaken up with a concentrated solution of sulphate of protoxide of iron, and next with milk of lime, and then rectified by distillation, *no* action of the ether upon the iodides was observed. The author further observed that, while he resided in Java, he always ordered the ether sent to him from Europe to be rectified in the manner just described, because so treated it remains perfectly pure and without any action upon iodides even in that warm climate, provided the bottles containing it were well stoppered and kept quite full.—*Chem. News, Jan. 10th*, 1873, from *Journ. de Pharm. et de Chim., Dec.*, 1872.

Artificial Ivory.—William A. Welling's patent for the manufacture of artificial ivory, has lately been extended by the Commissioner of Patents for seven years. The article is composed of 10 ounces of white shellac, 4½ ounces of acetate of lead, 8 ounces of ivory dust, and 5 ounces of camphor. The ingredients are reduced to powder, heated, and mixed; then pressed in heated moulds into sheets or other desired forms.—*Canad. Pharm. Journ., Jan.*, 1873, from *Amer. Chemist.*

Furniture Polish.—Scrape one pound of beeswax into shavings in a pan; add half a gallon spirits of turpentine, and one pint linseed oil. Let it remain twelve hours, then stir it well with a stick, into a liquid; while stirring, add one quarter pound shellac varnish and one ounce alkanet root. Put this mixture into a gallon jar, and stand it before the fire, or in an oven, for a week (to keep it just warm), shake it up three or four times a day. Then strain it through a hair sieve and bottle it. Pour about a teaspoonful on a wad of baize, go lightly over the face and other parts of mahogany furniture, then rub briskly with a similar wad dry, and in three minutes it will produce a dark brilliant polish unequalled. Another preparation may be made as follows: Make a mixture of three parts linseed oil and one part of spirits of turpentine. It not only covers the disfigured surface, but restores wood to its original color, and leaves a lustre upon the surface. Put on with a woollen cloth, and when dry rub with woollen.—*Canad. Pharm. Journ. Jan.*, 1873.

Ground Nuts or Pea Nuts.—There is hardly an article of American production, of apparently so little note, that has grown so rapidly in importance as the pea nut. There are fully 550.000 bushels sold annually in the city of New York alone. Previous to 1860, the total product of the United States did not amount to more than 150,000 bushels, and of this total, full five-sixths were from North Carolina. Now North Carolina produces 125,000 bushels; Virginia, 300,000 bushels; Tennessee, 50,000 bushels; Georgia and South Carolina, each 25,000 bushels; while from Africa come about 100,000 bushels a year. What is done with all these pea nuts? In this country they are eaten, and sent all over the land, from Maine to Oregon for this purpose. The demand is greater than the supply. In France they are used for making oil, which is by many considered to be superior to the best olive oil for salad purposes. In the Southern States during the war, it was so used. The oil made was also used as a lubricator, and as a substitute for lard, while the cake residuum was ground, roasted, and sold as a substitute for coffee. At present pea nuts are not used in this country for oil, the price being too high. Thus it will be seen that their uses are extensive and varied, and that the crop which now yields over $2,250,000, and which did not add to the commerce of the country more than $200,000 ten years ago, is at least not unworthy of note. Pea nuts vary with the soil upon which they are grown. The yield per acre averages 40 bushels, especially near Wilmington, N. C. They are therefore a better crop at $1.50 a bushel than cotton at 15 cents a pound. Much land, however, which will grow cotton well, will not grow pea nuts to the same extent. It is by many considered best to be near the sea, and very essential to have lime in the soil, or to manure with marl. As with many other products, pea nuts have been materially enhanced in value, and their production economized by modern inventions. For years before the war, the old-fashioned oriental style of threshing with a flail, and winnowing by throwing up in the air, was the universal custom. Both were overcome by the skill and talent of an ingenious mechanic of Wilmington, Mr. Thos L. Colville, now deceased. When the war commenced, the great demand for oil urged the necessity of using pea nuts for this purpose; but how could the hull be got off? The same mechanic overcame this difficulty. There is something surprising in the extent of the edible capacity of our American nation, for this one little article of, we may say, fancy diet. Who eats them? Ask the owner of that little sign, "Pea nuts fresh roasted every five minutes," and he will tell you "Everybody," from the wealthy banker to the homeless newsboy; and that his own sales are over a thousand bushels a year.—*H. E. Coltonin, Journal of Applied Science.*

On the Transformation of Albuminoid Material into Urea—M. E. Ritter.—M. Ritter has repeated the experiments of M. Béchamp with success, and exhibited to the Society crystals of urea, of oxalate and of nitrate of urea. He thinks he has discovered the cause of the failure of M. Loew, in the following. At a certain moment, the transformation, which has hitherto been slow, becomes active, thereby occasioning an increase of heat; it is necessary then to stop heating and even to add a little cold water, otherwise there is a very abundant disengagement of carbonic acid and ammonia, and no crystals are obtained. After a half hour the heating may be resumed, without fear.—*Amer. Chemist, Nov.*, 1872, from *Bull. Soc. chim. Paris.*

On the Presence of Milk Sugar in a Vegetable Juice—M. Bouchardat.—M. Bouchardat has analyzed saccharine matter obtained from the juice of the sapitillier (Achras sapota), and has found it to consist of

Fermentable sugar, Cane sugar, ...	55
Milk sugar, ...	45

This is the first well established proof of the existence of milk sugar in a substance of vegetable origin.—*Ibid.*

Minutes of the Pharmaceutical Meetings.

A pharmaceutical meeting was held February 18th, 1873, Samuel S. Bunting in the chair.

The minutes of the last meeting were read and approved.

Mr. Shinn said that, at the meeting held in December last,* reference was made to a preparation, somewhat in demand in this city, containing fifty per cent. of cod-liver oil and a certain amount of lacto-phosphate of lime. Many experiments, before and since that time, have been made by him to devise an eligible method of combining these remedies in a palatable form, resulting in the following formula, made to contain twelve grains lacto-phosphate of lime to the ounce:

Take of	Cod liver Oil,	Oj,
	Oil of Bitter Almonds,	
	" Peppermint,	
	" Wintergreen,	each gtt. x,
	Powd. Gum Arabic,	℥iv,
	" Sugar,	℥vi,
	Solution of Lacto-phosph. Lime,	(ʒi to f℥i) f℥viss,
	Lime Water,	f℥viss.

Mix the gum and sugar in a capacious mortar, and make a smooth mucilage with the lime water and three ounces of the solution of lacto-phosphate of lime. Add the volatile oils to the cod-liver oil, and gradually triturate them with the mucilage until a perfect emulsion is formed. Finally, add the rest of the solution of lacto-phosphate of lime, and mix thoroughly.

The solution of lacto-phosphate of lime is made as proposed by Mr. Neergaard in the Am. Journal of Pharmacy, June, 1871, by saturating a solution of lactic acid with freshly precipitated phosphate of lime.

The magma obtained from 16 ounces of phosphate of lime dissolved in muriatic acid, precipitated by ammonia, quickly washed and pressed, will be sufficient to saturate a pound of the commercial acid mixed with 4 pints of water. After filtering the solution it is assayed by evaporating a fluidounce to dryness and weighing the resulting lacto-phosphate of lime, when it can be made of a definite strength. In the formula given it contains 60 grains to the fluidounce, which is about equal to 30 grains of phosphate of lime, and is of convenient strength. It has a slightly acid taste, which, however, is not unpleasant, but rather renders the emulsion less cloying than if entirely sweet. As made by the formula, the preparation will keep in good condition for two or three weeks, but will eventually spoil, as shown by the blowing out of the stopper, although the taste and character are not materially altered.

If meant for sale to the trade the addition of about 20 per cent. of alcohol renders it more permanent, and in most cases may not be therapeutically objectionable.

This led to some remarks upon the preparation, during which Mr. Chiles gave his formula (which is published on page 105 of the present number). The question of the legality of selling the preparation was discussed, there being a patent for the manufacture of a similar compound.

Mr. Chiles stated that he also prepared a lozenge of lacto-phosphate of lime and pepsin.

Then adjourned. Clemmons Parrish, *Registrar.*

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* See January number, page 42.

Pharmaceutical Colleges and Associations.

Commencements.—We have been informed that the commencement of the New York College of Pharmacy will take place at Association Hall, on Monday evening, March 31st; that of the Philadelphia College of Pharmacy on Tuesday evening, March 18th, at the American Academy of Music; and that of the Maryland College of Pharmacy on Thursday afternoon, March 11th. The valedictory address will be delivered in Philadelphia by Professor Dr. R. Bridges.

Philadelphia College of Pharmacy.—The following gentlemen have been elected to serve as Examining Committee: Prof. William Procter, Jr., W. J. Jenks, W. B. Webb, Jos. R. Remington and William McIntyre.

The arrangements for the commencement have been entrusted to a committee, consisting of Messrs W. C. Bakes, J. T. Shinn and A. B. Taylor; by referring to the notice found on the inside page of the cover, it will be observed that members of the College, owing to the large graduating class, have been limited to two reserved seats, tickets for which must be called for before March 12.

During the session just closed, the following matriculants in the College have availed themselves of the instruction in the laboratory:

S. D. Addis, Pa.
Edmund Backhaus, O.
E. C. Batchelor, Miss.
Jacob Baur, Ind.
N. J. Bayard, Ga.
J. A. Bowers, Ind.
Chas. S. Brown, Miss.
J. N. Coffee, Ky.
A. Conrath, Wis.
E. S. Dawson, N.Y.
H. T. Eberle, Wis.
J. H. Flint, Cal.
A. S. French, N.Y.
W. C. Gill, Pa.
A. G. Griggs, Ill.
E. Z. Gross, Pa.
Frank Harper, Ind.
W. L. Harrison, Va.
Herman Haupt, Pa.
G. S. Henry, Pa.
T. C. Hilton, Pa.
W. H. Hubbard, Ill.
W. N. Janvier, O.
J. M, Jones, Pa.
W. Keir, M. D., Prince Edward's Isl.
F. J. Koch, Ia.
S. C. Lee, Pa.
R. V. Mattison, Pa.
J. O. McPherson, Ga.
St. Neppach, Wis.
Chr. Petzelt, Pa.
F. Radefeld, Pa.
G. M. Russell, Pa.
Henry Schmidt, O.
Chas. Schnabel, N.Y.
A. E. Smith, Va.
C. P. Smith, Pa.
O. L. Smith, Ga.
S. B. Spence, Wis.
T. A. Stevens,
A. F. Stifel, W. Va.
W. W. Swearingen, Ill.
I. P. Van Cise, Ia.
W. G. White, Ky.
F. P. Yergin, O.

Since December last, Prof. J. Reese, M. D., of the University of Pennsylvania, at the invitation of the Board of Trustees, delivered a course of lectures on "Toxicology," to such students of this College, and others who chose to avail themselves of this opportunity of acquiring a knowledge of the action of poisons, the post-mortem appearance of the body, and the detection of the poisonous articles. The lectures, which were well illustrated, were attended by a class numbering about fifty.

New York College of Pharmacy.—At a conversational meeting held February 13th, Dr. E. R. Squibb delivered a lecture on "The New United States Pharmacopœia."

THE NEW JERSEY PHARMACEUTICAL ASSOCIATION held its annual meeting on February 5th, at the State Capital. We understand that Dr. Nichols, the efficient President for the past year, declined a re election, and that Mr. James Stratton, of Bordentown, was elected in his place. We regret that a report on the proceedings, which was promised us, has not been sent.

MARYLAND COLLEGE OF PHARMACY.—At the stated meeting held February 13th, it was resolved to hold the annual meeting on March 13th, to be followed by a supper at the Rennert House. The Committee on the Pharmacopœia was instructed to report on the additions and changes in the new pharmacopœia, and to suggest a time for its general adoption by the members with a view to informing the medical profession of the fact. Dr. J. B. Baxley read an essay on Citrine Ointment, exhibiting samples made with various fats.

THE SAGINAW VALLEY PHARMACEUTICAL ASSOCIATION, at its annual meeting held in January last, elected the following officers for the current year:

S. S Garrigues, Ph. D , E. Saginaw, President; L. Simoneau, E. Saginaw, Vice-President; J. F. Street, Bay City, Secretary; W. Moll, Saginaw City, Treasurer; T. Collins, E. Saginaw, and G. Aldridge, Bay City, Finance Committee.

At a subsequent meeting, the Rhode Island law, to regulate the sale of medicines and poisons, was considered and altered, in some respects, with the view of submitting it to the Legislature of Michigan for adoption. There appears to be a fair prospect of its passing.

THE TENNESSEE COLLEGE OF PHARMACY has called a meeting of the pharmacists and druggists of the State, to assemble in Nashville, on Wednesday, 14th of May next, to take into consideration "the best means to secure the enactment of laws regulating the drug business in our State; to encourage proper relations between druggists, pharmaceutists, physicians and the people at large, which shall promote the public welfare and tend to mutual strength and advantage; to improve the science and art of pharmacy, suppress empiricism, and to gradually restrict the dispensing of medicines to educated pharmacists."

Those who are unable to attend, are requested to send their views in writing to the Secretary, Mr. Jos. J. Hall.

We sincerely wish that they may be successful in their laudable endeavors to improve the science and art of Pharmacy, and to secure to the public greater security in the dispensing of medicines, and that the meeting may be a large and influential one, since half-fare can be secured to Nashville during the month of May to attend the Industrial Exposition.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.—At the pharmaceutical meeting held February 5th, many donations were made to the library and museum.

Professor Attfield exhibited some syrup of iodide of iron, containing iodide of lead crystallized in golden spangles, and probably derived from the iodine, which had subsequently been found to be contaminated with lead. Mr. Williams had repeatedly observed iodide of lead in the syrup in question, which he always traced to the iron filings employed, while the iodine was free from lead. Mr. Umney had likewise observed this contamination when crude iodine was employed, but never with resublimed iodine and iron wire.

Dr. Arthur Leared read an interesting paper on "Some drugs collected in Morocco," and exhibited many specimens. From the discussion we select the following remarks :—

"Mr. Hanbury said that Dr. Leared had referred to a seed extremely like that of *Peganum Harmala*, but black instead of brown. *Peganum Harmala* was a plant well known in the East, and its seeds possessed a remarkable property of affording, when digested in spirit, a green fluorescent solution. With regard to orris root, which, they were told, had lately come into the market from Morocco, he had the other day observed the curious fact that at the beginning of the present century price currents always used to contain both Florentine orris root and Barbary orris root. The Barbary orris root was entirely derived from *Iris germanica*, the common blue flag of our gardens. With regard to cumin we were told that it was used by the Jews in their bread, and also for flavoring pickled tunny fish. In the middle ages it was much used in Europe as a spice and a condiment. Dr. Leared had drawn attention to the remarkable fact of caraways being brought from Morocco. He (Mr. Hanbury) confessed that when he was shown Morocco caraway seeds in London some time ago, he hardly knew how to believe his eyes, for the caraway was essentially a northern plant, dwelling in Scandinavia and the colder parts of Europe. On looking, however, at Jackson's 'Morocco,' a work published at the beginning of the present century, he found that the author distinctly mentioned caraway seeds as an export of Morocco, and upon his (Mr. Hanbury's) sowing some of the Morocco caraway seeds last spring, he obtained a plant exceedingly like that of Europe. As to grains of paradise, it might be true, as stated by the people of Morocco, that their drug came from Europe, but it was a very curious fact that at Tripoli and the towns on the northern coast of Africa grains of paradise were still brought by caravans coming from Soudan and Timbuctoo, and from the tropical parts of Africa east of Sierra Leone. They were so brought in the middle ages, and shipped to the ports of Italy; and as they came from an unknown and remote region, and were much esteemed, they acquired their present name, the people supposing that no place but Paradise could produce anything so delightful. In subsequent times, when there was direct trade between Western Africa and Europe, grains of paradise were an article of very large import, being brought direct even to England and France. They were once in common use as a condiment for human food.

"Professor Bentley said that Mr. Hanbury had anticipated some of the remarks he had intended to make. He must say that, although he had come to the meeting fearing that the paper, being technical, would be uninteresting, he had found it quite the contrary, and had listened to it with great gain. Researches such as those of Dr. Leared were the only means by which they could get any historical knowledge of old remedies, or form an acquaintance with new ones. As to orris root, it was very interesting to find that it came in such large quantities from Mogador, in Morocco. Dr. Leared had referred to only one species of *zizyphus*, though there were several species known by the common name of jujube; but as to the so-called jujubes manufactured in London, it was quite understood that the juice or the fruit of the jujube plant did not enter into their composition. He was very sorry that the great fascination of partridge shooting had prevented Dr. Leared from seeing the ammoniacum plant, as he should have liked to have been informed of the mode in which it was obtained. Perhaps Dr. Leared might have heard from the natives whether the drug ammoniacum was obtained from the root, from the stem, or from both. In the museum there was a very interesting specimen of the stem of the Persian ammoniacum plant, with the ammoniacum *in situ*. That result had been produced, not by incisions, but by the attacks of beetles or some creatures of the kind, in consequence of which the gum had exuded and covered the stem. The poisonous nature of *Spartium junceum* had been referred to in the paper. The Spanish broom had been examined by Dr. Stenhouse, who had found a new principle in it, and therefore, anything in connection with that subject was of interest. Of course, the drug was a strong diuretic. With regard to starch, no doubt it was present in plants allied to the arum, and could probably be obtained in large quantities from the large corms and underground stems without much difficulty. He apprehended that the poisonous quality was got rid of not so much by washing as by a certain amount of temperature that was employed in the preparation of the substance.

"Mr. Collins said that there seemed to be two kinds of 'harmala' seed, and both seemed to have had that name at first. Those of *Peganum harmala* he had compared with a herbarium specimen. The other was certainly those of a rutaceous plant, but whether it was a variety of *Peganum harmala*, he (Mr. Collins) could not say. He did not see in the Herbarium of the British Museum any specimen which showed a variation in the seed between those two. With regard to argan, he could not help wondering why the oil had not been introduced into this country. Sir William Hooker, in the 'Journal of Botany,' gave a very good account of it, and it had been very highly spoken of. As to Tacout galls, they were very small, and they did not seem to be equal to the Morea galls The latter were introduced to commerce some time ago, but from inquiry which he had made, he found that they were not considered good enough to be sent. The dealers said that when the galls were very small they did not like them, because they were very often mixed with foreign substances. With regard to *euphorbium*, it would have been very interesting if the plant from Kew had been sent to the meeting, because it had now, through the researches of Dr. Cosson,* some historical interest. It would be remembered that Dr. Berg some time ago made an examination of certain parts of the stems found in the specimens, and he gave it the name of *Euphorbium resinifera*. Dr. Cosson having examined specimens which he received from Mr. Hanbury and others, said that he believed that Dr. Berg was correct. Dr. Hooker in the meantime had obtained a plant from Mr. Cartensen, and this was now growing. The only matter to be cleared, and to make one sure that it was this species which yielded the gum euphorbium, was the flowering of the specimen. That event would prove whether Dr. Berg and Dr. Cosson were correct."

Professor Redwood stated that a reprint of the British Pharmacopœia would again be required very shortly, and referred to some alterations and additions which would then become necessary, it is not proposed to issue a new edition, but merely a supplement and appendix with the present pharmacopœia.

Editorial Department.

Professor Oscar Oldberg's address before the National College of Pharmacy was the subject of some editorial comments in our last number. The printed copy sent us being prefixed by a quotation from our remarks published in November, we deemed the address written with especial reference thereto, and therefore regarded it as reflecting upon the motives which prompted the first notice. In this we are glad to say we have been mistaken. Professor Oldberg writes that "not a word of your quotation was, either imputatively or otherwise, aimed at you." Regretting that we interpreted his words in a different manner than intended by him, it is but just that we should give the entire passage verbatim to which we had taken special exception. It follows immediately after the quotation on page 92:

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* Pharm. Journ. [3], vol. iii, 1049.

> It is, indeed, our duty (no less than our privilege) to profit by the sneers of the uncharitable, and so manage that, in the future, all our institutions may partake of the nationalism of the city itself. They must not—nay, *cannot* be sectional to succeed. And to say that the people of the District of Columbia do not appreciate their privilege in this respect is an accusation much too jejune to be made in earnest.

After this correction in the bearing of the foregoing, we find also the sentence, immediately following, of an appropriate character, which at first we could not discern:

> Thus it is eminently proper that the National College of Pharmacy, situated at the National Capital, should make bold to compete with its older sisters *without a churlish thought of unworthy contention.*

The New Pharmacopœia—Correction.—In some copies of the new Pharmacopœia will be found two errors, which originated in compiling and transcribing the manuscript for the printer, and were overlooked in proof reading. As soon as discovered the necessary typical corrections have been made. We call the attention of our readers to the same, that they may be enabled to make the requisite alterations in case they should have a copy issued before the errors were discovered.

In the article "Pyroxylon" the quantity of sulphuric acid in the alternative formula on page 262 should be *ten*, instead of two troyounces.

In the formula for "Spiritus chloroformi," on page 275, twelve fluidounces of *alcohol* (not diluted alcohol) should be used.

Bay Rum.—Our attention has been directed to the two formulas for bay rum which, on page 95 of our last issue, we copied from "The Chemist's and Druggist's Diary." Both formulas were contributed to the "Druggists' Circular" in 1869, and will be found on pages 185 and 199 of that paper. One of the formulas has been copied incorrectly into the "Diary," and from it into our last number. Instead of ½ lb. cardamom. it should read Sem. Amomi (i. e. Pimenta) ½ lb.

Elixirs and Secret Formulas.—For several years past pharmacists have been annoyed by the continued introduction of new elixirs, medicated wines and similar preparations, ostensibly gotten up for the purpose of exhibiting nauseous medicines in a form which should be at once pleasing to the eye and agreeable to the taste. The baneful effects of this class of preparations have, we believe, never been more justly and more forcibly stated than by Dr. Squibb, at the Cleveland meeting of the American Pharmaceutical Association, who, after alluding to the inducement of large profits held out by the manufacturer to the dispenser, said:*

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* Proceedings of the American Pharmaceutical Association, 1872, p. 80.

"Physicians are liable enough to go on the ready-made clothing store principle; they will take anything that is compounded and save themselves the trouble of compounding: but while I am speaking of a large class of physicians, fortunately there is another class, and to those pharmacists would do well to address themselves. There are no two patients whose conditions are right for the same preparation of these elixirs, and therefore it is really a ready-made clothing system; when you put a definite portion of strychnia, cinchona and iron into a preparation, you foreshadow a case which requires exactly that preparation. Some require no iron, some a little more strychnia, some no cinchona, and so the physician puts a good many shot into his gun, or is induced to do so by drummers, in the hope of hitting something somewhere. The result of this is, it has become reduced to what is a little better than fashionable tippling. It is a fashionable way of getting stimulants into the stomachs of women and children, and as such it deserves the serious reprobation of this Association. There is no way we can do more good, and place it in a better position with physicians and the community at large, than by setting our faces against this elixir swindle, as it is properly called."

The danger likely to result to pharmacy from the wholesale introduction of these preparations, was recognized at an early day, and various ways were adopted, individually, by the conscientious pharmacists, either to avoid their dispensing altogether, or to dissuade physicians from prescribing preparations the formula of which was not made known to such an extent that they could be made alike by all pharmacists. Several local pharmaceutical societies then took the matter in hand, and published and adopted formularies for the guidance of their members and others who chose to avail themselves of the information given. The formulas of these societies for the same preparation, however, rarely, if ever, agreed, and the variation in the nature of the products as obtained from different pharmacies, was therefore not removed. In 1871,* Dr. E. W. Russell, of Baltimore, suggested that the American Pharmaceutical Association should select and adopt the most satisfactory formulas, either for adoption in the new pharmacopœia, or to recommend their general use by the pharmaceutical and medical professions throughout the country.

Large bodies proverbially move slowly, and the subject being of vital importance to two kindred professions of this continent, the National Association referred to Mr. Robert J. Brown, of Leavenworth, the following query: "Are there reasons sufficient to warrant this Association in propounding formulas for unofficinal preparations with a view to securing uniformity in dispensing?" which, at the last meeting, was answered† in an able paper, the concluding remarks of which are as follows:

"We believe the time has come when these preparations should be prepared by every pharmacist. If this Association will take a forward step in the publication of the best formulas that can be obtained, we believe there are thousands of apothecaries who will throw aside A., B. and C.'s preparations, and prepare them after the formulas propounded by this Association, rejoicing that they are free from the odium of dispensing semi-nostrums, and the American Pharmaceutical Association will continue in its good work of disseminating useful information to American pharmacists."

The reading of this paper gave rise to an interesting discussion, from which we quoted above only a portion of Dr. Squibb's remarks, but which touched upon several other important and interesting points connected with this question. At a subsequent session the Association passed the following resolution:

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* See American Journal of Pharmacy, 1871, p. 381.

† Proceedings of the American Pharmaceutical Association, 1872, p. 207.

> *Resolved*, That a committee of five be appointed by the President, to take into consideration the subject of elixirs and similar unofficinal preparations, in all its bearings upon pharmacy, and, if deemed proper, to report suitable formulas for the guidance of the members of this Association.

And the President appointed the following committee to carry out the objects of the resolution: Messrs. John F. Hancock, Baltimore; James G. Steele, San Francisco; Hampden Osborne, Columbus, Miss.; Robert J. Brown, Leavenworth, and Ottmar Eberbach, Ann Arbor, Mich.

We regard this as an excellent choice, all the gentlemen having already devoted much time and labor on the subject, and among them, Mr. Eberbach having proven analytically, in an essay on the alkaloids contained in commercial elixirs, which was read at the Cleveland meeting,* that most of the elixirs examined by him fell more or less short, some by two-thirds the amount of these important constituents claimed by the manufacturers.

We have prepared the above sketch of the agitation against the private elixirs, etc., in consequence of the replies which we have received to the paper by Mr. J. W. Long, entitled "A defense of elixirs, etc.," which, with some editorial remarks, we published in our last number. Our correspondents will pardon us us for not publishing their essays in extenso, since all (five have been received thus far) agree in the main in their arguments against these modern species of nostrums, and advocate the adoption by the American Pharmaceutical Association of suitable formulas for all the more important elixirs and similar preparations which of late years have gained notoriety, and have been more or less extensively prescribed by physicians. Most of our correspondents seem to have overlooked the notice that the Association has taken proper steps in the direction indicated, which we published on page 444 of our last volume. In regard to the appointment of a similar committee by the American Medical Association, to act in conjunction with that of the Pharmaceutical Association—a suggestion made in two or three of the papers received—we must say that such a committee might materially lighten the labors of the pharmacists by indicating the most suitable proportions of the active ingredients in the formulas to be proposed and adopted; we suppose, however, that the American Pharmaceutical Association will take proper steps to make the medical profession of the country acquainted with whatever action it may take in this matter, so as to secure uniformity in these preparations in all localities.

A suggestion made by Mr. William B. Addington, of Norfolk, Va., is worthy of consideration by all interested, namely, that "manufacturers whose elixirs, syrups, etc., are good, might show a little public spirit, and send in their formulas to this Committee for examination and selection. . . . Give to him, whose formulas are accepted, the credit on all occasions; and he who feels a pride in benefitting and elevating his profession, and not merely in making what pecuniary gain he can out of its members, will consider himself amply rewarded." Those who feel inclined to adopt this course can readily do so by communicating with any member of the Committee named above.

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* Proc. Amer. Pharm. Assoc., 1872, 264—273.]

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Year-Book of Pharmacy, comprising Abstracts of Papers relating to Pharmacy, Materia Medica and Chemistry, contributed to British and Foreign Journals from July 1, 1871, to June 30, 1872. With the Transactions of the British Pharmaceutical Conference at the Ninth Annual Meeting, held at Brighton, August, 1872. London: John Churchill & Sons, 1872. 8vo, 676 pages, exclusive of advertisements.

This annual publication comes to us in its usual attractive style, its pages filled with matters of interest to the pharmacist. The first 400 pages are devoted to the "Year-Book," or, as it is termed by our national association, the "Report on the Progress of Pharmacy," which is introduced with a review —covering 12 pages—of the more important observations and discoveries made during the preceding year, relating directly or indirectly to pharmacy. This is followed by a review of the investigation on the various articles of materia medica, conveniently grouped together into natural orders.

Part II of the Year-Book treats of pharmaceutical chemistry, upon 172 pages; Part III of pharmacy, upon 101 pages, and Part IV contains, upon 20 pages, a number of notes and formulas, which could not conveniently be arranged in the preceding part.

The abstracts of the papers are very full and complete, and, as far as we have examined, cover pretty well the pharmaceutical literature of the year. In our opinion, the use of Parts II and III would be materially facilitated if they were subdivided by several headings, as has been done in Part I; the systematic arrangements which appear to have been adopted for the two parts would then become more obvious.

The Year Book is followed by the Constitution, &c., of the Conference, the alphabetical lists of members, and of the towns in which they reside. The roll shows 18 honorary, and altogether 2000 members, a number far surpassing that of the American Pharmaceutical Association, which latter has been organized more than double the length of time.

The Transactions of this body, including the reports and papers read at the meeting, occupy 188 pages. In the October number of 1872 we have given a short account of them, and several papers have been republished in this Journal.

Great credit is due to Mr, C. H. Wood, editor of the Year-Book, and Prof. Attfield, editor of the Transactions, for the labor bestowed upon this volume, not the least important feature of which is a complete and carefully prepared index of 26 pages, in double columns.

The Pharmacist and Chemical Record. A Monthly Journal of Pharmacy, Chemistry and the Collateral Sciences. Published by the Chicago College of Pharmacy, 1873. Price, $1.50 per year.

The January number of our contemporary comes to us enlarged from 24 to 32 pages each month. It remains under the editorship of Professor N. Gray Bartlett, with Mr. Albert E. Ebert, associate editor. We congratulate our Western friends on this evidence of success and prosperity.

OBITUARY.

Professor Dr. J. F Hermann Ludwig died at Jena on the morning of Jan. 7th, in the fifty-fourth year of his age. In him pharmacy loses one of her most devoted and accomplished scholars, and one of her most conscientious and successful teachers For the following biographical notes we are indebted to the "Pharmaceutische Zeitung: Born at Greussen, Sondershausen, on the 12th of August, 1819, he served his apprenticeship there in the "eagle-pharmacy," and subsequently as assistant in various parts of Germany and Switzerland. In 1844 he went to Jena to study chemistry and pharmacy. In the following year he became the assistant in the pharmaceutical institute of the eminent Wackenroder, and in 1847 Professor of Agricultural Chemistry in the Agricultural Institute at Jena. In 1852 he habilitated himself as Lecturer in the University of Jena, and, after Wackenroder's death, in 1854, he succeeded his teacher as Director of the Pharmaceutical Institute, in which capacity he labored uninterruptedly until last winter, when he was prostrated by sickness, which terminated his useful career.

Since 1851 Professor Ludwig has been acting as Inspector of Pharmacies, and as a member of the State Board for Chemical and Pharmaceutical Affairs. When, in 1869, a pharmaceutical examining board was created at the University of Jena, Ludwig was appointed one of the members. Since 1860 he and Dr. Mirus conducted the chemico-legal investigations for the grand-duchy of Weimar and adjacent states, and, in conjunction with Prof. Reichardt, undertook the analysis of the springs of the larger towns of his state to determine their fitness for drinking and culinary purposes. His chemical and pharmaceutical researches were published in the "Archiv der Pharmacie," of which journal he was co-editor with the late Dr. L. Bley from 1863 to 1867, and was the sole editor since 1868. Of larger works, Prof. Ludwig published translations of A. Philippe's History of the Apothecaries, &c., and of Tardieu and Roussin's Toxicology, the latter work in connection with Dr. Thiele; and, together with Prof. Hallier, an edition of Clamor Marquart's Pharmacy.

As an earnest student, he accumulated valuable collections; but, overworked as he had been for years, with a compensation inadequate for his numerous responsible duties, he leaves a wife and four children in very moderate circumstances.

The deceased was an honorary member of the American Pharmaceutical Association, and a corresponding member of the Philadelphia College of Pharmacy.

George Waugh, a prominent member of the Pharmaceutical Society of Great Britain, died, at the age of 71 years, on the 12th of January, at his residence, Queensborough Terrace, Kensington Gardens. The deceased was for many years a member of the Council of that Society, and may be regarded the originator, as he has been one of the most active promoters, of the Jacob Bell Testimonial Fund.

THE

AMERICAN JOURNAL OF PHARMACY.

APRIL, 1873.

ÆSCULUS PAVIA, LIN.—RED BUCKEYE.

By E. C. Batchelor.

From the Author's Inaugural Essay.

The red buckeye of the Southern States is generally regarded as a poison; I have often heard farmers attribute the death of stock to their having eaten of some part of the plant. I have endeavored, in my experiments with the seeds, under Prof. John M. Maisch, to ascertain what amount of truth there may be in such reports, and, so far as my researches have gone, they prove that the seeds are possessed of decided poisonous properties, residing chiefly in a glucoside found in the cotyledons. The symptoms are similar to those of strychnia poisoning. Unfortunately I neglected to estimate the yield of the active principle, but it must be at least 2½ per cent. From the following analysis it appears that there is much truth in the statements of the farmers as to its poisonous properties, and many deaths among cattle may be justly attributed to this shrub.

Æsculus Pavia, Lin.—Red Buckeye.

Nat. Ord.—Sapindaceæ.

Habitat.—United States: Virginia, southward and westward.

Small tree or shrub, sometimes reaching the height of ten feet. Fruit smooth. Leaves opposite, digitate, leaflets 3, 5 or 7, serrate, straight-veined, like those of the chestnut; glabrous or soft downy beneath. Flowers in a terminal thyrsus or panicle, often polygamous, the greater portion having imperfect pistils and sterile. Pedicels jointed. Calyx tubular, five-lobed, rather oblique or gibbous at the base. Petals 4, erect and conniving; the two upper smaller and longer than the others, consisting of a small rounded blade on a very long claw. Stigmas 7, not longer than the corolla, which is bright red, as well as the tubular calyx. Ovary 1 to 3 celled, generally 1 or 3, with two ovules in each cell, rarely more than one of which forms a seed. Seed 1 to 1½ inches long, ¾ to 1 inch in diameter, smooth, round on one side, flat or angular on the other; dark reddish brown testa (dry) with large pale scar. Cotyledons two, very thick and fleshy, their contiguous parts more or less united; of a pale greenish color with light brown resinous spots scattered throughout. Embryo curved.

Testa no odor; taste astringent and slightly bitter; constitutes 17 per cent. of the seed.

Cotyledons slightly disagreeable odor; taste amylaceous and slightly sweet at first, then bitter and acrid, with a peculiar and lasting drying effect in the fauces. The seeds lose 25 per cent. of weight in drying.

Testa.—1. Reduced to a moderately fine powder and exhausted with benzin, the testa yielded three per cent. of a dark reddish brown resin, pulverizable, possessing a slight terebinthinate odor and taste.

2. The residue dried, exhausted with alcohol of ·835, and the alcohol distilled off, yielded a dark red extract-like matter, having little odor, but a very astringent taste; this proved to be tannic acid (green with ferric salts) and coloring matter.

3. The residue was dried and exhausted with cold water, the infusion treated with lead acetate, precipitate washed, and lead removed by SH_2, filtered; filtrate heated to drive off SH_2, and filtered to separate S; concentrated and crystallized, yield a minute quantity of long prismatic crystals; coloring was removed by repeated crystallization from boiling alcohol; crystals possess neither odor nor taste—they are organic.

Cotyledons.—1. Reduced to a fine powder and exhausted with benzin, the cotyledons yielded five per cent. of a greenish brown fixed oil, lighter than water, little odor, taste bland and rather sweet, non-drying; at 50° F. it separated a concrete principle—more at a lower temperature (8°—10° F). It is probably palmitin with some stearin.

2. The residue was dried and exhausted with alcohol ·817. The alcohol distilled off left as residue a dark green mass of the consistence of honey, possessing a heavy unpleasant odor, and the peculiar taste of the cotyledons very much concentrated. The extract was treated with ether to remove an oil of a dark green color, having a

slight terebinthinate odor and taste, and being soluble in ether and chloroform. Residue of extract was agitated with chloroform, and allowed to stand 48 hours. A thin, slightly green layer separated at bottom, which, upon separation and subsequent evaporation, yielded a small amount of a light-greenish tenacious mass, resembling the glucoside very much in taste, but differing from it by its solubility in chloroform and not being readily pulverized. To the remaining turbid chloroform mixture, alcohol of ·817 was added in excess (3 to 1); the sugar was precipitated, taking with it some of the glucoside. This was separated by repeated solution in alcohol ·817 and precipitated by ether, the ether and alcohol holding the glucoside in solution, the sugar precipitating. The yield of cane sugar and syrup was 2½ per cent. Upon evaporating the alcoholic and ethereal solution, the glucoside was obtained in light yellowish-brown, shining scales, possessing a peculiar, heavy odor and an extremely bitter and acrid taste, with a peculiar and lastingly drying effect in the fauces. This glucoside, by boiling with dilute hydrochloric acid, was converted into glucose, and a compound, which, by solution in alcohol, was obtained in small yellowish-white crystals, devoid of odor and taste, but having an acid reaction. The glucoside is insoluble in ether and chloroform, soluble in alcohol, more in hot; freely soluble in water, yielding a frothy solution acid to litmus. By distilling with $H_2SO_4H_2O$, a solution of valerianic acid was obtained, which was carefully neutralized with NaHO, evaporated, and yielded a small quantity of salt. A portion of this mixed with a drop of amylic alcohol and H_2SO_4 in excess, yielded, upon the addition of a drop of water, the odor of apple oil or valerianate of amylic ether.

3. The residue (from alcoholic percolator) was dried and exhausted with cold water, the infusion treated with lead acetate, the precipitate washed and the lead thrown out by H_2S and filtered. The filtrate was rejected; the residue on filter dried, reduced to a fine powder, and exhausted by washing with cold alcohol of ·817. The alcoholic solution was heated and filtered, the filtrate shaken with a small portion of chloroform to remove the coloring matter which floated on the top of the solution, and separated by filtration; filtrate concentrated and crystallized, obtained a minute crop of light yellowish-white prismatic crystals, soluble in alkalies, not in acetic acid, possessing a decided acid taste and reaction, and totally volatilized by heat.

4. The residue left of the cotyledons was washed with successive

portions of cold water; washings mixed and allowed to settle; sediments collected and dried at a moderate temperature, yielded 12 per cent. starch, with loss. The seeds yielded 2½ per cent. of ashes, a qualitative analysis of which proved its composition to be aluminium, magnesium, potassium, sodium (iron trace), as bases, and carbonic, hydrochloric and phosphoric acids.

Physiological effects of the glucoside.—A full-grown cat, to which a portion of a solution containing a half grain of the glucoside was administered, exhibited signs of great uneasiness within fifteen minutes. Symptoms: first stupor, then starts and jerking of the muscles, protruding eyes, with much frothing at the mouth; the stupor and muscular spasms continued to alternate for three days, the cat occasionally staggering about the room as if in a fit. At the end of the three days it began to recover, and would then take food. Owing to accident, I could not state exactly the amount administered, but it was something under a half grain; and having lost my solution by the same accident (principally the claws and teeth of my patient), I failed in estimating the amount necessary to cause the death of the cat, but proved that in a moderately large dose it would prove decidedly injurious if taken internally.

The glucoside differs from argyræscin and aphrodæscin, found by Rochleder in the *Æsculus hypocastanum*, by the following reactions:

Argyræscin.—1. By H_2SO_4, pale yellow solution; the heat generated by adding a drop of water changed the color to a deep red, and upon the heat being pushed, deposits grayish-green flocks, at the same time evolving the odor of fatty acids.

2. Its solution in aqueous alkalies, upon being warmed, changes into a viscid mass and solidifies to a yellow jelly; by pushing the heat it is liquefied.

3. Its aqueous solutions are precipitated by acetate and subacetate of lead.

4. It is not freely soluble in water.

Aphrodæscin.—1. Precipitated from aqueous solutions by baryta water.

2. Its solution in aqueous alkalies resembles argyræscin when heated.

Glucoside.—1. H_2SO_4 rich yellow solution, a drop of water changes the color to a reddish-purple; by pushing heat, deposits purple flocks, evolving at the same time the odor of fatty acids (Val.) Upon cooling, the color changes to a beautiful dark purple.

2. Its solution in aqueous alkalies does not solidify when warmed.
3. It is not precipitated from aqueous solutions by acetate or subacetate of lead.
4. It is freely soluble in water, making a frothy solution.
5. It is not precipitated from aqueous solutions by baryta water.

SUMMARY.

Ashes, 2½ per cent., contain aluminium, magnesium, potassium, sodium and iron trace; carbonic, hydrochloric and phosphoric acids.

Testa, 17 per cent.: 3 per cent. resin; tannic acid (green color with persalts of iron). Red coloring matter; a minute crop of white prismatic crystals, devoid of taste.

Cotyledons: 5 per cent. fixed oil; a tough matter, resembling the glucoside in odor, taste and reaction, but differing from it by its solubility in ether and chloroform, and by its not being readily reduced to powder.

2½ per cent. cane sugar and syrup. Glucoside, soluble in alcohol, water and alkaline solutions; by HCl and H_2O converted into glucose and another principle crystallizable from hot alcohol, having an acid reaction, but devoid of the peculiar odor and taste of the glucoside. The glucoside is the active principle, poisonous, symptoms resembling those of strychnia poisoning.

A minute quantity of a crystallizable organic acid; green coloring matter; 12 per cent. starch.

Valerianic acid, by decomposing the glucoside resin, and glucoside by H_2SO_4.

SULPHO-MOLYBDATE OF AMMONIA AS A TEST FOR SOME ORGANIC COMPOUNDS.

By J. H. Buckingham.

Among the latest tests for the detection of morphia, a solution of sulpho-molybdate of ammonia will be found the most delicate. The beautiful blue color which it gives when dropped upon that alkaloid, is indeed a striking reaction. It will give, however, a characteristic color, not only with morphia, but also with many other organic principles.

One of the peculiarities which I noticed while making my experiments, was that, when allowed to stand for any length of time in contact with the compound, the solution always became blue. This color was light or dark, according to whether or not the solution, when first applied, gave a characteristic color. This change is due to the oxidation of the solution, as all salts of molybdic acid or its compounds, when heated in contact with air, will finally turn blue. This, however, is hastened by the contact of some organic matter or any deoxidising agent.

This test may be prepared by mixing eight grains of molybdate of ammonia with two drachms of sulphuric acid (chemically pure). The milky solution is then heated until it becomes clear, care being taken not to raise the heat too high, or a change will take place.

This solution should be made fresh every time it is wanted for use. Small quantities should be used, as different results may be obtained by increasing the quantities.

The following are the reactions with some of the most important alkaloids and other principles.

1. Those which, at first, produce no color, but afterwards change to a light blue.

ALKALOIDS, ETC.	FIRST COLOR.	SECOND COLOR.	FINAL CHANGE.
1. Quinia,	Colorless,		Light Blue.
2. Quinidia,	“		“ “
3. Cinchonia,	“		“ “
4. Asparagin,	“		“ “
5. Strychnia,	“		“ “
6. Atropia,	“		“ “
7. Caffeia,	“		“ “

2. Those which, at first, produce a characteristic color, and afterwards, with exception of meconin, change to a dark blue.

ALKALOIDS, ETC.	FIRST COLOR.	SECOND COLOR.	FINAL CHANGE.
8. Santonin,	Light Purple,		Dark Blue.
9. Menispermia,	“ Yellow,		“ “
10. Solonia,	Yellow,		“ “
11. Veratria,	Yellow Green,	Dark Brown,	“ “
12. Meconin,	Light “		Light “
13. Codeia,	Green,		Dark “
14. Narcotina,	Yellow Green,		“ “
15. Phloridzin,	Dark Blue,		Permanent.
16. Salicin,	Purple,	Blue, then Brown Red,	Dark Blue.
17. Morphia,	Dark Red,	Purple,	“ “
18. Digitalin,	Crimson,	Purple,	“ “
19. Brucia,	Brick Red,		“ “
20. Aconitia,	Light Yellow Brown,	Brown,	“ “
21. Piperina,	Brown Red,		“ “
22. Berberina,	Purple,		“ “
23. Cubebin.	Crimson,		“ “

This test gives an easy and delicate method of distinguishing between strychnia and brucia, and also for detecting the adulteration of quinia with either salicin or phloridzin. The first color produced may be regarded as the real reaction, as the final change is due to deoxidation.

AN EXAMINATION OF SOME BRANDS OF LIQUORICE.

By Wm. N. Martindell.

From an Inaugural Essay.

I procured for my examinations the following well-known brands, viz., "Corigliano," "Guzolini," and "P. & S.," all Calabria makes; "G. H." and "Noel & Co.," both Spanish; and "M. & R.," a domestic article, made in this city by Messrs. Mellor & Rittenhouse.

Exactly 500 grains of each brand was weighed, and macerated in f℥viii of water, at the temperature of 39° F. After 24 hours the specimens were all softened down into a smooth paste, by occasionally stirring and shaking. When perfectly smooth they were thrown upon tared filters, washed with cold water, dried and weighed, showing the following results after being thus exhausted in cold water:

	Residue.	Est. soluble in cold water.	Loss.
"Corigliano,"	218 grains	280 grains	2 grains
"Noel & Co.,"	253	176	71
"P. & S.,"	248	225	27
"Guzolini,"	175	284	41
"G. H.,"	233	210	57
"M. & R.,"	116	317	67

The variableness in the amount of loss is to be attributed to the different degrees of dryness in the specimens examined. I am informed, however, by those who have had experience in the matter, that where liquorice is dried for powdering the loss is 10 per cent.

The residue which was left upon the filters as insoluble in cold water, when treated with boiling water, gave the usual color test for starch upon the addition of iodine.

The figures above given are not intended to be absolutely correct. They are very well ascertained for practical pharmaceutical and commercial purposes, however, and if they are received as such my object has been accomplished.

The various brands of liquorice examined presented very marked differences when placed side by side. The size of the sticks varied from 1¼ oz. to 4 oz. The texture, if I may use the expression, in the Calabria brands was not as fine and smooth as that of the Spanish, and neither of these brands showed the smoothness and freedom from grit found in specimens selected from the article manufactured by M. & R.

The fracture, which is generally considered one of the best tests for liquorice, was brightest in the American article; indeed, the brilliancy of fracture was very marked, and excelled that of any other examined by me. The next degree of beauty of fracture I found in the Corigliano. Next in order of excellence came the other brands of Calabria, and finally, and worst of all in this feature, the Spanish.

The flavor also varied in every brand, no two being alike in this particular. This matter of flavor is one of opinion entirely. I merely offer my own for what it is worth, and it is that "Guzolini" is equal in this respect to "Corigliano," which is usually considered the finest; "P. & S." and the two Spanish brands are about alike in flavor; while the "M. & R." has a stronger taste of liquorice at first, but leaves a much pleasanter "after-taste" than any of them. This strong taste in "M. & R." is due, I think, to its greater degree of solubility, as well as less dryness than seen in the imported brands.

There are many suggestions that occur to me in this connection, to which, when opportunity permits, I purpose giving my attention. Of one thing, in conclusion, I feel satisfied: it is that the reputation of some of the most celebrated brands is fictitious when compared with some less known and esteemed, and that the domestic article is very superior and should receive that sanction which is due to pure articles in pharmacy.

DECOCTUM ZITTMANNI; SYRUPUS ALTHÆÆ; TINCTURA RHEI AQUOSA.

By H. M. Wilder.

Decoctum Zittmanni.

Several years ago a physician entered our store and asked how long it would take to make Zittmann's decoction. "Twenty-four hours at least," was the answer. (See Wood and Bache, note to decoct. sarsapar. comp.) Upon inquiry, if it were not possible to reduce the time, my employer proposed the following extemporisation, which the physician approved of and always subsequently prescribed.

Strong Decoction.

Fl. extr. sarsaparill. simpl.,	f℥vj.
" sennæ,	f℥ij.
Extr. glycyrrhizæ depur.,	ʒiss.
Alumin. pulv.,	ʒii, gr. xlviii.
Ol. anisi,	gtt. iii.
" fœnicul.,	gtt. v.
Aquæ, q. s., ad vol.	Oix, or

to six wine bottles; add to each bottle Massæ pil. hydrargyr. gr. x, well rubbed up.

Mild Decoction.

Fl. extr. sarsaparill. simpl.,	f℥iii.
" sennæ,	fʒiii.
Extr. glycyrrhiz. depur.,	ʒss.
Tinct. cardamomi,	f℥i.
Ol. limonis,	
Ol. cinnamom,	*aa* gtt. i.
Aquæ q. s., ad vol.	Oix,

or to fill six wine bottles.

Syrupus Althææ.

The Prussian Pharmacopœia orders

Althææ rad. conc.	part i.

Macerate a few hours in

Aquæ,	pt. xviij.

Strain without expression, and make to syrup with

Sacchar. alb.,	pt. xxiv.

As above prepared it is kept with difficulty in the winter, and in summer time it gets sour within a few days unless kept on ice.

I have, for a couple of years, obviated this difficulty by substituting part of the sugar by glycerin, as follows:

Althææ rad. conc. (freed from dust),	℥i.

Macerate for two hours in

Cold water,	f℥xviii, or

so much as will produce on straining (without expression) a liquid measuring f℥xv. Add

Glycerin,	f℥viss.
White Sugar,	℥xivss.

Boil once and strain. To render spoiling (even in the hottest summer) next to impossible, fill in two or four oz. vials (according to business) up to the stoppers, and lay them in the cellar on their sides. If that is too much trouble, the addition of gr. vj of bisulphite of lime to the above quantity will retard spoiling for a very long time.

Tinctura Rhei Aquosa.

According to the Prussian Pharmacopœia, take

Rhei conc.,	pt. xii.
Potass. carbon.,	pt. iii.

Macerate in

Aquæ cinnam. spirit.,	pt. xvi.
Aquæ,	pt. xcvi.

for 24 hours, strain, let deposit, and filter.

This forms a beautiful dark reddish-brown tincture, which, however, spoils quite as quickly as syrupus althææ, getting sometimes gelatinous, and always turbid.

I have been using to advantage Mr. Bille's aqueous fluid extract of rhubarb (see Am. Jour. Pharm., vol. xliv, p. 483) in making this tincture, as follows:

	Fl. extr. rhei aquos.,	f℥i.
	Potass. carbon.,	ʒii.
	Aquæ,	f℥viss.
Add	Alcohol,	f℥ss.
	Ol. Cinnam.	gtt. ii.

Said aqueous fld. extr. of rhubarb would form a very useful addition to the list of preparations in the next Pharmacopœia.

EMULSIONS OF COD-LIVER OIL.

By William G. Moffit.

Extracted from an Inaugural Essay.

The cod-liver oil now found in our market is more pleasant to the taste than what was formerly met with, due, in a great measure, to the competition in its manufacture.

But, notwithstanding the fineness of the oil, and the almost total absence of the disagreeable fishy odor (so strong in common cod-liver oils), it requires a strong effort on the part of many persons to become used to taking it. This is especially the case with ladies and children, or in fact any who have weak stomachs. Its taste and odor has therefore to be disguised in order to make it palatable, and at the same time to preserve its virtue unimpaired.

For this purpose acacia, tragacanth, and various other gums have been used for emulsifying the oil, and some pleasant essential oil to cover the odor. The main objection found by physicians to this mode, is the large quantity usually employed for this purpose. In making the mucilago acaciæ our Pharmacopœia directs to use the acacia in coarse powder. When made with the powdered drug, it is generally of a dirty white color, owing to the impurities in the powder. In prescriptions where the quantity of the oil to be emulsified is large in proportion to the quantity of the mucilage, it is best to use the powder, incorporating but a little water, sufficient only to mix the gum thoroughly. The oil is then to be added, in very small quantities at a time. Sometimes before the oil is all added it becomes very thick, and then it is necessary to add a small quantity of water.

Emulsions of cod-liver oil are now being largely manufactured by some of our leading pharmacists. Generally these represent 50 per cent. of cod-liver oil, but in some cases fall far short of the amount thus represented.

In some specimens tried by the author, less than 25 per cent. was found. Besides not containing the amount of oil advanced, it is very often made of the commoner kinds of oil, the strong offensive odor of which is generally masked by some of the essential oils.

From some experiments tried I would select the following formula for an emulsion of cod-liver oil. This is generally found to give satisfaction, and to remain unaltered for some time:

Cod-liver Oil Mixture.

℞.	Pulv. Acaciæ,	ʒii,
	Sacch. Alb.,	ʒi,
	Aquæ,	ʒiv,
	Spts. Vini Gall.,	℥iv,
	Syr. Rubi Idæi,	ʒi,
	Ol. Gaultheriæ,	gtt. xviii,
	Ol. Morrhuæ,	ʒviii.

M. ft. emuls.

This contains about 50 per cent. (42 per ct., by measure, Edit. A. Jour. Ph.) of oil, and is a very pleasant preparation.

In the above recipe there will be found by some an objection in the use of the brandy, on account of the alcohol which it contains being capable of precipitating the gum from solution. This can be obviated in a great measure by adding it last. It has, however, the property of preserving it for a length of time.

An emulsion is by far the best method of incorporating cod-liver oil with other medicines. Iron is often introduced. This is easily done by adding a soluble salt to the mixture. In the following formula a concentrated solution of pyrophosphate of iron is used, which keeps well, and is a very useful addition to our list of cod-liver oil mixtures. It is, I think, one of the easiest and most convenient ways of administering iron in combination with cod-liver oil, and is much liked by those who in their practice have had occasion to use it:

Cod-liver Oil in Combination with Iron.

℞.	Pulv. Acaciæ,	℥i,
	Pulv. Sacch. Alb.,	℥ss,
	Aquæ,	℥iv,
	Alcohol,	℥i,
	Ol. Morrhuæ,	℥v,
	Sol. Ferri Pyrophosph.,	gtt. cc,
	Ol. Amygdal. Amar.,	gtt. v.

M. ft. emuls.

A new preparation of cod-liver oil has recently come under the attention of physicians and pharmacists, namely, that of lacto-phosphate of lime and cod-liver oil. The most advantageous manner of preparing this is a matter of dispute. I have found the following to answer all the purposes indicated:

Lacto-phosphate of Lime and Cod-liver Oil.

℞.	Pulv. Acaciæ,	℥i,
	Pulv. Sacch. Alb.,	℥ss,
	Liquor. Calcis,	℥iii,
	Alcohol,	℥i,
	Ol. Morrhuæ,	℥i,
	Sol. Calcii Lacto-phosph.,	q. s.
	Ol. Gaultheriæ,	gtt. v. M.

In the above, lime-water is substituted for water, to neutralize any excess of lactic acid in the solution of lacto-phosphate of lime. This often gelatinizes, on account of the sucrose being converted by the action of lactic acid into glucose, and thus rendering it so thick and ropy as to be unfit for use.

The solution of lacto-phosphate of lime is made by dissolving phosphate of lime in lactic acid. The solution should be assayed, and water added to make the required amount, which is two grains to the teaspoonful of mixture. The solution should be filtered in order that the emulsion should be perfectly white.

The phosphate of lime and cod-liver oil is also a new preparation, and is sometimes used in preference to the above. It is made by adding freshly prepared phosphate of lime to the emulsion and stirring constantly until it is thoroughly and uniformly mixed. On standing, it, however, lets fall the phosphate of lime, and requires to be well shaken before it can be used.

In all the above preparations much labor can be avoided by the use of a patent churn, which may be had to hold thirty or forty gallons of the mixture. In the process of making an emulsion of this kind on a large scale, care should be taken that the mucilage is perfectly uniform and free from lumps before the oil is added.

PHARMACEUTICAL NOTES.

Boston Highlands, *January*, 1873.

Editor of the American Journal of Pharmacy:

Dear Sir,—In the January number of the "American Journal of Pharmacy," I see a method given for making Ung. Zinci Oxidi with a paint-mill, which, to a person making only a small quantity at a time, would be both cumbersome and expensive. I have found that by rubbing the zinc oxide with a small quantity of glycerin on the slab to a fine, smooth paste, and then mixing with the benzoinated lard, gives me a perfectly smooth ointment, free from that rough or gritty feeling when rubbed on the skin, as when made in the ordinary manner. I have also found glycerin the best excipient for making pills of oxide of zinc, care being taken not to make them too soft.

For suppositories I have always used the common metallic moulds, set in a tray. I fill the tray with ice and water, then immerse the moulds. After standing a few moments, take each mould separately and breathe in it, so as to form a coating of moisture on the inside; then put in a small quantity of lycopodium, and shake; then empty. This leaves a coating of lycopodium. Return the moulds to the tray;

prepare your material, and when it is about as cool as can be and pours readily, then fill your moulds, and in a very few moments you can knock them out without smashing your fingers.

I never have any trouble in getting them out, not even when made of carbolic acid; neither do I ever add any wax or spermaceti to harden them.

E. A. ALDEN.

OLEATE OF MERCURY AND MORPHIA.

By Louis Dohme.

Read at the Annual Meeting of the Maryland College of Pharmacy.

Having occasion to prepare some oleate of mercury, I met with the same difficulty complained of by several colleagues—that of being unable to procure a *pure* oleic acid, which it is asserted dissolves both the red and yellow varieties of oxide of mercury without difficulty, and without causing the reduction of the oxide and consequent precipitation of the metallic mercury. Specimens of commercial oleic acid obtained from different sources were all of a more or less brownish red color, owing to oxidation of the oleic acid, and contaminated with stearic and probably palmitic acids. The latter acids were separated to a considerable extent by exposing the acid to a temperature of 40° F., and expressing the liquid portion as directed by Mr. Charles Rice, in the January number of the Amer. Journ. Pharmacy. In attempting to prepare the oleate of mercury, I also followed the directions given in the above article, but I found considerable difficulty in effecting the solution, the oxide dissolving very slowly, and separation of metallic mercury occurring even when the temperature was carefully kept below 175° F. This induced me to make some experiments on the subject, which finally lead to the preparation of the oleate of mercury by double decomposition between oleate of potassium and nitrate of mercury.

Preparing one pound (7000 grains) of oleate of mercury, containing five per cent. of the red oxide (this being the strength specified in our order), the following process and quantities were found to yield the most satisfactory results.

Red oxide of mercury, .	350 grains.
Nitric acid, 42° . .	335 "
Caustic potassa, . .	220 "
Oleic acid, . . .	1112 "
Diluted alcohol, . .	4 fluid ounces.

The red oxide of mercury was triturated with the nitric acid until dissolved, and the resulting solution of nitrate of mercury diluted with half a fluid ounce of water.

The caustic potassa was dissolved in the diluted alcohol, contained in a dish capable of holding a quart, and to this solution the oleic acid was added, which at once combined with the potassa, forming a clear solution of oleate of potassium.

The solution of nitrate of mercury was now poured gradually into the solution of oleate of potassium, the mixture being stirred briskly with a glass rod, and the precipitation of the oleate of mercury of the consistence and color of firm white butter was the result. On applying the iodide of potassium test to the mother liquor, this was found to be entirely free of nitrate of mercury, showing that all the mercury had been precipitated as oleate of mercury. The oleate was now thoroughly washed with cold water to remove the nitrate of potassium, and finally pressed with a pestel to remove the water as much as possible. The oleate was next placed in a tared dish, and sufficient oleic acid was added to make the whole weigh 7000 grains. The dish was then placed on a water-bath, and the mixture heated to 140° F., when a clear solution of the oleate of mercury was obtained of a light yellowish brown color, and containing five per cent. of the red oxide of mercury.

When an oleate of mercury containing ten per cent. of oxide is desired, all that is requisite is to double the above quantities of ingredients, using 700 grs. of red oxide of mercury, &c., &c., and after precipitating and washing the oleate, adding sufficient oleic acid to make the whole weigh one pound.

The solutions of oleate of mercury prepared from the commercial acid, whether by the above process or by dissolving the precipitated oxide in oleic acid by heat, are prone to pass from the liquid to a gelatinous and finally semi-solid state, caused probably by further oxidation of the combined acid and also by its partial union with the mono-acid salt first formed, and in experimenting to prevent the solidification, it was found that, when adding a mixture of equal parts of alcohol and oleic acid, instead of oleic acid alone, to the precipitated oleate of mercury, in making up the final weight of the preparation, a more liquid product was obtained, which to the present time (seven days), has not gelatinized.

By substituting olive oil in the same manner for the oleic acid, to mix with the precipitated oleate, a preparation was obtained which retains its light straw color and liquid consistence thus far without the slightest observable change. The precipitated oleate of mercury, although not completely dissolved by the oil, remains mechanically mixed with it.

To prepare the oleate of mercury and morphia, it is only necessary in preparing a pound, for instance, containing two per cent. of morphia, to dissolve 170 grains of basic morphia in six fluid ounces of oleic acid, or a mixture of oleic acid and alcohol at a temperature of 140° F., and after cooling, to add this solution of oleate of morphia to the precipitated oleate of mercury in making up the weight of one pound, as in the above process.

When the oleate of mercury is prepared from the commercial acid, as in the above process, it is necessarily contaminated with combinations of the mercury with other fatty acids, even when the acid had been expressed after exposure to a low temperature. But this will hardly affect the therapeutical value of the preparation, as the combination of the fatty acid evidently only offers the mercurial in a favorable form to be absorbed when externally applied, without otherwise adding to its efficacy.

Regarding the quantities of material in the formula, I would add, in conclusion, that the calculated quantities of potassa and oleic acid sufficient to precipitate the nitrate of mercury, was found to be 182 grains of potassa and 917½ grains of oleic acid, but the increase in the above formula was adopted to insure complete precipitation of the mercury, the excess of soap being easily washed out afterwards. The quantity of nitric acid is also in excess of the calculated quantity, being the quantity found requisite in practice.

Baltimore, March 13th, 1873.

SELECTED FORMULAS FROM PHARMACOPŒA GERMANICA.

By the Editor.

(Continued from page 109 of last number.)

Fel Tauri depuratum siccum. Equal parts of fresh ox gall and 90 per cent. alcohol are mixed, the precipitate separated, and the alcohol recovered by distillation. The residuary liquid is treated with purified animal charcoal until it becomes yellowish, when it is filtered, evaporated and powdered. 100 parts of fresh yield about 7 parts of purified ox gall.

Ferrum carbonicum saccharatum. 5 parts of sulphate of iron and 4 p. bicarbonate of sodium are separately dissolved in hot water, the solutions mixed and the air excluded. The precipitate is washed by decantation, then mixed with 8 parts of sugar, evaporated to dryness and powdered. It contains 20 per cent. of carbonate of iron.

Ferrum chloratum. Granulated protochloride of iron, obtained by rapidly evaporating a recently prepared solution until a pellicle is formed, adding 1 part of hydrochloric acid for every 520 parts used in dissolving the iron, and evaporated, with constant stirring, to dryness.

Ferrum iodatum saccharatum. A solution of iodide of iron, prepared from 3 p. powdered iron, 10 p. distilled water, and 8 p. of iodine, is filtered upon 40 p. milk sugar, evaporated to dryness and powdered. Contains 20 per cent. of ferrous iodide.

Ferrum oxydatum saccharatum solubile. 20 parts of solution of sesquichloride of iron (sp. gr. 1·480 to 1·484, containing 43·5 per ct. anhydrous ferric chloride) are mixed with 20 p. simple syrup; 40 p. of soda solution (spec. gr. 1·330 to 1·334, containing 30 to 31 per ct. $NaHO$) are gradually added and the mixture set aside for 24 hours. The clear liquid is mixed with 300 parts of hot distilled water, the precipitate washed first by decantation, afterwards upon the filter, and allowed to drain. After the addition of 90 parts of powdered sugar, the precipitate is dried in a water-bath, and enough sugar added to make the whole weigh 100 parts, which contain ferric oxide equal to 3 parts of metallic iron.

It is a reddish powder, of a sweet and slightly ferruginous taste, completely soluble in 5 parts of water, the solution having a slight alkaline reaction.

Ferrum sesquichloratum. $Fe_2Cl_6+6H_2O$ in crystalline masses, completely soluble in water, alcohol and ether.

Gelatina Carrageen. 1 part of Irish moss is boiled for half an hour with 40 p. water, and expressed. To the strained liquid 2 parts of sugar are added, and the whole evaporated to 10 parts.

Gelatina Lichenis Islandici. Prepared like the foregoing, from 3 parts of Iceland moss, 100 p. of water, and 3 p. of sugar. The result is 10 parts.

Gelatina Lichenis Islandici saccharata sicca. 16 p. Iceland moss is deprived of bitterness by macerating it with 1 part of carbonate of potassium, and sufficient water. The washed lichen is boiled with 200 parts water for four hours, the decoction strained and with 6 parts of sugar evaporated to dryness; sufficient sugar is then added, so that the weight of the sugar shall be one-half of the weight of the brown-greyish powder.

Infusum Sennæ compositum. Vienna draught. 2 parts of cut senna are treated for five minutes with 12 p. hot water; dissolve in the expressed infusion 2 p. Rochelle salt and 3 p. of small flake manna, and strain. The whole weighs 15 parts.

Lichen Islandicus ab amaritie liberatus. 5 parts Iceland moss are treated for three hours with 30 p. tepid water and 1 p. solution of carbonate of potassium (containing one-third exsiccated carbonate); the lichen is then well washed with water and dried.

Linimentum saponato-ammoniatum. Soap shavings, 1 part, are dissolved in 30 parts of water, 10 of 90 per cent. alcohol and 15 parts water of ammonia.

Linimentum saponato-camphoratum is the old-fashioned opodeldoc.

Linimentum saponato-camphoratum liquidum corresponds to the soap liniment, U. S. P., but contains ammonia and less than half the quantity of camphor. The proportions are: Castile soap 30 p., 68 per ct. alcohol 230 p., camphor 5 p., oil of thyme 1 p., oil of rosemary 2 p., water of ammonia 8 p.

Liquor Ammonii carbonici. Carbonate of ammonia 1 p., distilled water 5 parts.

Liquor Ammonii pyro-oleosi, of the same strength, is made with pyro-oleous carbonate of ammonium.

Liquor Ferri acetici. Dilute 10 p. solution of tersulphate of iron with 30 p. of water, and mix with 8 p. ammonia water, previously diluted with 160 p. water; the mixture must have an alkaline reaction. The precipitate is carefully washed with distilled water and expressed in a linen strainer until the residue weighs about 5 parts; this is left in contact with 6 p. acetic acid, sp. gr. 1·040, for several days, in a cool place, with occasional agitation, filtered and sufficient distilled water added to make the solution weigh 10 parts.

The liquid has a deep brown-red color, becomes turbid on heating, has a specific gravity of 1·134 to 1·138 and contains 8 per cent. of iron.

Liquor Ferri chlorati is an aqueous solution of protochloride of iron, spec. grav. 1·226 to 1·230, containing 10 per cent. of iron.

Liquor Hydrargyri nitrici oxydulati s. Liquor Bellostii. Protonitrate of mercury, 100 parts, is triturated with 15 p. nitric acid, and 885 p. distilled water are gradually added. The solution is altered on keeping.

Liquor Kali arsenicosi, Fowler's solution, is not colored, and contains one-ninetieth of its weight arsenious acid; it is therefore about one-fifth stronger than the solution of the U. S. Pharmacopœia, which contains $\frac{1}{113}$ of arsenious acid.

Liquor Natri carbolici. Pure carbolic acid 5 parts, solution of caustic soda, spec. gr. 1·330 to 1·334, 1 part, distilled water 4 parts.

Liquor seriparus. Liquid rennet. 3 parts of the mucous membrane of fresh calf's rennet macerated for three days in 26 parts of white wine, 1 part of table salt being added.

Magnesia citrica effervescens. Carbonate of magnesia 25 parts, and citric acid 75 parts, are triturated with a little water to a thick pulp, which is dried at a temperature not higher than 30° C. (86° F.) 14 parts of this powder, 13 p. bicarbonate of soda, 6 p. citric acid and 3 parts of powdered sugar are thoroughly mixed; the mixture is moistened with sufficient alcohol and rubbed through a tinned iron sieve, so that a coarsely granular powder is obtained, which is dried at a moderately warm place.

Magnesia lactica, *Lactate of magnesia,* is obtained by saturating lactic acid, spec. grav. 1·24, previously diluted with 10 parts of water, with carbonate of magnesia and evaporating the filtrate to crystallization.

(To be continued.)

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Derivatives of vanillic acid.—P. Carles obtained the iodated compounds of vanillic acid* by treating the aqueous solution of the latter with an alcoholic solution of iodine for 24 hours at a temperature of 50° C., and purifying the crystals by repeated recrystallization from alcohol. The two compounds $C_{16}H_7IO_6$ and $C_{16}H_6I_2O_6$ are colorless and have little odor.

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*See American Journal of Pharmacy, 1872, p. 231.

On treating the concentrated aqueous solution of vanillic acid with bromine, gradually added, a precipitate is formed, which is dissolved in alcohol agitated with mercury, crystallized and purified by animal charcoal and boiling water. $C_{16}H_7BrO_6$ forms pearly crystals, of a yellowish color, fusing at 16° C.

The chlorinated compounds are uncrystallizable.

Oxyvanillic acid, $C_{16}H_8O_8$, is obtained in white odorless prisms by adding vanillic acid to fusing potassa, supersaturating with hydrochloric acid, and crystallizing first from ether, afterwards from boiling water.

The author concludes that vanillic acid is isomeric with anisic, formobenzoylic (amygdalic), methylsalicilic, cresotic, oxytoluic and a large number of other acids.—*Journ. de Pharm. et de Chim.*, 1873, 106–108.

Antifermentative properties of silicate of sodium.—According to Mr. Picot, a small quantity of this silicate arrests the putrid fermentation, retards other fermentations, destroys the red globules outside of the organism and prevents the transformation of the glycogen compound of the liver into glucose.—*Ibid.*, 131.

Malacca beans, the fruit of *Semecarpus anacardium*, Lin., contain a fixed oil of a black color, which is readily exhausted from the bruised fruit by digesting it in fused paraffin, stearin, &c., so that black candles may be obtained without having their illuminating power in the least impaired.—*Prof. Bœttger, in Buchner's N. Repert.*, 1873, 60.

For the cleaning and polishing of silver spoons and other utensils.—Elsner recommends warm water in which potatoes have been boiled, by rubbing them between the fingers with the fine starchy sediment: even engraved and plated articles, as well as such of German silver, are thus easily polished, and the use of polishing powders rendered unnecessary. Potato water which has turned sour on standing may be used for polishing copper, instead of oil of vitriol.—*Pharm. Centr. Halle*, 1873, *No.* 5.

Preparation of pure oxalic acid and oxalate of ammonium.—Habedank dissolves commercial oxalic acid in a little absolute alcohol and filters from the insoluble oxalates of calcium and potassium; the crystals are freed from some oxalic ether by recrystallization from boiling distilled water.

The alcoholic mother-liquor may be used for dissolving fresh portions of oxalic acid, or it may be diluted, heated to boiling, neutralized with ammonia and the secondary products, oxamide and oxamethan, decomposed by continued boiling and acidulating with oxalic acid. On rendering the filtrate slightly alkaline with ammonia, and recrystallizing the product repeatedly, pure oxalate of ammonium is obtained.—*N. Jahrb. of Pharm.*, 1873, *Jan.*, *from Zeitschr. f. anal. Chem.*, XI.

Some constituents of Veratrum album.—The bitter taste of the infusion of this rhizome, after it has been entirely deprived of the alkaloids, is due to a principle which was obtained by Hermann Weppen, in the form of a light yellow amorphous mass, which appears to be a glucoside, and is soluble in alcohol, more readily in water, insoluble in ether, chloroform, benzole and petroleum benzin. Exposed to the air it is deliquescent and soon becomes discolored and dark brown; its solution is precipitated by subacetate of lead.

A new acid, jervic acid, $C_{14}H_{10}O_{12}+2H_2O$, was obtained by the author as a light, white, crystalline powder, which is not fusible, not sublimable, slightly soluble in cold water and strong alcohol, very sparingly in absolute ether, insoluble in benzole, bisulphide of carbon, chloroform, petroleum benzin, amylic alcohol and dilute acids. A solution of the acid is turned yellow by alkalies, the color deepening on heating; alkaline earths in excess produce white precipitates, turning lemon-yellow on boiling. No precipitates are produced with the chlorides of barium and calcium, the sulphates of iron, zinc and copper, mercuric chloride and nitrate. Precipitates, which are soluble in nitric acid, are obtained with the acetates of lead, mercurous nitrate and nitrate of silver; the latter is not affected by boiling or exposure to light. The acid differs, therefore, from oxalic, succinic, malic, tartaric, citric, gallic and Merck's veratric acids. Jervic acid was probably mistaken by Pelletier and Caventou for gallic acid; the two acids bear some analogy in composition, but the former is tetrabasic while the latter is monobasic.—*Ibid.*, *Feb.*, p. 98–102.

Poisoning by citrate of iron and quinia.—An interesting case, with an experiment upon himself, is related by Dr. Levié, of Rotterdam. The symptoms were pronounced by Dr. Van Hasselt, the well known toxicologist, to be those of atropia. Similar cases have repeatedly occurred in Rotterdam with the same preparation, but the source of the atropia in it has never been ascertained.—*Ibid.*, *from Nederl. Tydschr. voor Geneesk.*, 1872.

REACTIONS OF APOMORPHIA.*

By Max Quehl and H. Koehler.

Besides the reactions noticed before by Matthiessen and Wright, the authors observed the following, produced in solutions of apomorphia:

1. Sulphocyanide of potassium gives a white curdy voluminous precipitate, which dissolves on heating.

2. Ferrocyanide of potassium changes the solution to reddish-yellow, finely flocculent, opalescent; on boiling, the precipitate becomes more apparent, cake-like, and assumes a leek-green color.

3. Ferricyanide of potassium yields a white curdy precipitate, insoluble on boiling, but turning violet-blackish.

4. Tannin produces a yellow-greenish precipitate, insoluble on boiling, but separating afterwards slowly in larger floccules.

5. Chloride of gold gives a purple precipitate, resembling the one produced with tin salt; it is soluble in much water and acquires, on boiling, a darker brown-red shade.

6. Nitropicric acid precipitates solutions, even when largely diluted, lemon-yellow; the voluminous precipitate dissolves on boiling.

7. Sulphate of copper renders the liquid turbid and blueish-white, changing to sap-green on boiling.

8. With iodine in iodide of potassium a blood-red precipitate occurs, disappearing on boiling.

9. Stannous chloride yields a white precipitate, soluble on heating.

10. Chloride of zinc produces a light precipitate, readily disappearing on boiling.

11. Basic acetate of lead renders the solution gradually turbid and greenish.

12. Arsenious acid produces a greenish turbidity, but no precipitate.

13. Acetate of baryta yields at first a slight whitish turbidity; after awhile a greenish sediment.

THERAPEUTICAL VALUE OF APOMORPHIA.†

As the histories show, the subcutaneous introduction of apomorphia, both in the dog and cat, has always given a positive result, and in every one of the therapeutic experiments the emetic action has been observed with great certainty.

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* M. Quehl, Studien über Apomorphin. Translated from Neues Jahrbuch für Pharmacie, 1873, Jan.

† Glasgow Medical Journal.

First of all, as regards the *dose* administered in man, it varied between ·003 and ·011 grms. In four cases it was 3 mgrms.; in three, it was 4 mgrms.; in three, it was 5 mgrms.; in one, it was 7 mgrms.; and in one, 11 mgrms. But it must be observed that in all these cases the effect was the same; that in none of them, beyond the emetic effect, and the variations of pulse and temperature accompanying the act of vomiting, did further concomitant effects of consequence appear even with the largest doses. As we have convinced ourselves, through frequent repetition of the experiment with different large doses in the same individual, the administration of twice or thrice the quantity of the dose from which an effect has been already proved to follow produces no more result than that from the smallest efficient dose. It must certainly, therefore, be reckoned not the least important property of apomorphin that its administration has great scope, and that even large doses may be used with safety, a property which certainly does not belong, in the same degree, to our most approved emetics, such as antimony, ipecacuanha, and copper.

As a second, though, perhaps, less important element, we must mention the smallness of the active dose of our drug, which, for subcutaneous employment, is of moment.

As a third and most important peculiarity of our drug must be mentioned the possibility of its employment subcutaneously. We may specially remark that we never observed, either in man or animals, any local irritation at the point of injection; neither has the act of injection been accompanied by special pain, apart from the mere manipulation of the needle. We may add that we have experimented with different strengths of our preparation, but neither with one per cent., nor with five or ten per cent. solutions, has irritation been produced. The part of the body selected is of no importance as regards the ultimate result. It must appear superfluous to contrast, with any further detail, the advantages which the employment of an emetic, by introducing it subcutaneously, possesses; and it may suffice to mention that all previous attempts at this mode of using an emetic have failed. We refer specially to the experiments of Eulenburg, Husemann, Ellinger, and Schuchardt. The advantage of the administration of emetics thus must be very apparent in the treatment of children, and not unfrequently even in adults, in cases of poisoning, and where there is coma or loss of consciousness, and in many other cases.

A fourth, and certainly not unimportant, property of our drug is, to produce its specific action comparatively soon after introduction, and after very short preliminary symptoms. and sometimes even without any. For the better illustration of this point we may be permitted to quote here the results which Ackermann obtained in his investigations into the physiological effects of the most powerful emetics with reference to the commencement of emesis. Ackermann says, with reference to the three most powerful emetics, antimony, ipecacuanha, and sulphate of copper, "by the repeated administration (from 5 to 8 in the evening) every 15 minutes till the occurrence of vomiting, of half grain of tartar emetic, emesis began after about 1¾ hours. By similar repeated doses of 10 grains of ipecacuanha, emesis set in after about ¾ hour, and after 5 grains sulphate of copper, given every 15 minutes, in about one hour." Let us compare with these results the time of the first occurrence of emesis after the administration of apomorphia; and it appears from our experiments on man that the shortest interval between its introduction and its action was 4 minutes, the longest 16 minutes. The difference in this respect, in comparison with the other emetics, requires no comment. We may here record an observation which we made both on the English preparation and on Merck's, viz: that while apomorphia, preserved in the form of powder, seems not to lose its activity in the least, as is evident from the circumstance that after more than a year our English preparation showed striking results, still, once dissolved, it seems very soon to decompose and lose its strength. We were able to demonstrate in the solution a daily diminution of activity, though it still, in comparison with other emetics, continued prompt. Further observations will test the accuracy of our remark.

We must lastly point out a fifth agreeable property of this substance, that, as may be partly explained by the rapidity with which it acts, comparatively very trivial and transient collateral effects occur, especially never unpleasant after effects such, as accompany tartar emetic. In many cases vomiting took place quite rapidly without any previous symptoms, and after one or more acts of emesis the patient felt perfectly well. At most, a few general symptoms for a short time preceded and succeeded the act of vomiting, and the duration of these symptoms was always much shorter than attends any hitherto known emetics. Generally, several minutes passed after the introduction of the apomorphia, during which there was no objective or subjective change. Soon there set in headache, giddiness, especially a frequently expressed inclination to yawn, and a variable degree of faintness. In not a few cases, vomiting was preceded by the outbreak of perspiration, more or less copious, sometimes over the whole body, at other times confined to the face. Along with this there was frequently drowsiness and a certain amount of apathy. As soon as emesis was over, the symptoms above-mentioned always began to disappear. The actual vomiting was preceded, though not in all cases, and only for a short time, with eructations and retching. In a few cases vomiting came on so suddenly and unexpectedly that, without any previous warning, at one bout, all the contents of the stomach were expelled. In these cases, generally, the symptoms also following the act were so slight that the patient had scarcely any discomfort immediately after. But always (and this is of much importance in contrast with other emetics), in all cases the patient was perfectly well again very shortly after vomiting, and only in the latter observations, in which a less active preparation was used, were the after effects somewhat prolonged, though, even then, in comparison with other emetics, they were both much shorter and much less severe.—*Canadian Pharm. Journ., March*, 1873.

STRIATED IPECACUANHAS.*

By M. Planchon.

(Concluded from page 116.)

The synonymy of the two kinds of striated ipecacuanha described in the former part of this paper is difficult to clear up, in consequence of the manner in which authors have confused the two species. But a consideration of the characters previously indicated has enabled me to do so pretty clearly.

The first author whom I have found clearly referring to a striated ipecacuanha is Lemery, who describes the third of his four species of ipecacuanha as "espèce grise cendrée glycyrrhizée."† Now, this sort, according to the characters attributed to it (larger dimensions than those of the official species, and a sweetish taste, recalling that of liquorice) can only answer to my "major" striated ipecacuanha. It is the same sort as Mutis had sent to Europe as identical with "Brazilian" ipecacuanha, and of which he had sent the mother plant to Linnæus. At the end of the eighteenth century and the beginning of the nineteenth this sort was to be met with rather frequently in collections of drugs if not in pharmacies. It is clearly the root of the *Psychotria emetica* which Richard describes in his inaugural thesis* under the name of striated ipecacuanha; whilst Mérat and De Lens†, and more lately Guibourt,‡ confound it under the same name with the minor striated ipecacuanha.

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* Journ. de Pharmacie et de Chimie, vol. xvii, p. 19.

† Dictionnaire des Drogues Simples, 1759, p. 459.

This kind has occurred in commerce from time to time, but in the present day it has little chance of entering a pharmacy. Mr. Hanbury has sent me a specimen that was offered to the Pharmacie Centrale in Paris in 1858 under the name of Ipecacuanha of St. Martha. M. Vogl has described it in a memoir under the name of *Ipecacuanha glycyphlœa*,§ and states that it was sent into the market of Bremen as Carthagena Ipecacuanha. Some fragments which I owe to the kindness of Mr. Hanbury came from some packages sent from Bogota in 1870 and offered in the London market. It was from these packages the specimens were taken that were analyzed by Professor Attfield,|| and which he called "elastic striated ipecacuanha." Lastly, it was a short time previously that M. Dorvault received at the Pharmacie Centrale the "violet" ipecacuanha which attracted my attention and which agrees as nearly as possible with the roots of *Psychotria emetica.*

It appears difficult to say when the "minor" striated ipecacuanha first appeared in commerce. But it is clear that this was the kind analyzed by Pelletier in 1820,** since that chemist noticed 79 per ct. of woody fibre, gum and starch, and we know that only the "minor" contains starch. Now this species existed in the drug cabinet of the father of Pelletier under the name of "Ipecacuanha des Côtes d'Or

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* Histoire Naturelle des Diverses Espèces d'Ipécacuanha du Commerce (Thèses de la Faculté de Médecine de Paris, 1820).

† Dict. de Matière Médicale, 1831, vol. iii, p. 643.

‡ Guibourt's figures (Hist. Nat. des Drogues Simples, 6th edit., vol. iii, p. 94) agree in part (the two larger specimens) with the "major" striated ipecacuanha, and in part (the specimen placed between the other two) with the "minor."

§ Vogl, *loc. cit.* The authors of the Jahresbericht der Pharmacognosie, etc., are wrong in referring this *Ipecacuanha glycyphlœa* to *Cephaelis.* All its characters, exterior and anatomical, agree with those of my "major" striated ipecacuanha.

|| Pharm. Journ. [2], vol. xi, p. 141.

** Journ. Pharm. et de Chim., vol. vi, p. 261.

(Minas de Oro)," and Pelletier adds that he also recognized it in a mercantile house which had received it from Peru, *viâ* Cadiz. Moreover, it must have been present at that time in most collections. It was this sort that M. Guibourt used principally for illustration at the School of Pharmacy, and it is the only sort which I have found named as striated ipecacuanha at the Pharmacie Centrale des Hôpitaux. M. Vogl* saw it in the collection at Vienna described as *Ipecacuanha striata seu nigra.* Professor Attfield found it in the Museum of the Pharmaceutical Society of Great Britain, and analyzed it under the name of "brittle striated ipecacuanha."† Finally, it has recently been described in detail by Mr. Pocklington in a paper on the use of the microscope in pharmacy.‡

It is remarkable that this latter sort has hitherto been considered by most authors to be the produce of the *Psychotria emetica*, to the exclusion of the former. Pelletier first, then successively Vogl, Thénot, C. Ménier and Pocklington have referred it to that origin. Professor Balfour,§ also, after describing the *Psychotria emetica*, attributed to the root of that species the chemical composition given by Pelletier, which we have seen could only have agreed with that of the "minor" striated ipecacuanha. The more active properties of the "minor" sort, its greater richness in emetina, and also the fact of its having been analyzed by Pelletier, have brought it into greater prominence and caused it to be looked upon as the true type of striated ipecacuanha, and consequently the botanical origin generally attributed to striated ipecacuanha has been specially applied to it. In no other way can the general error into which authors have hitherto fallen be explained.

To sum up, there exist two sorts of striated ipecacuanha, of which the following appears to be the synonymy:

1. "MAJOR" STRIATED IPECACUANHA.—Roots of *Psychotria emetica*, L.—*Ipécacuanha gris cendré glycyrrhizé*, Lemery (Dict. Drog. Simp. p. 459). *Ipécacuanha strié*, Richard (Thèse Inaug.) *Ipécacuanha strié* (*partim*), Mérat and De Lens (Dict. Mat. Méd. vol. iii, p. 643); Guibourt (Drog. Simp. 6th edit. vol. iii, p. 94). *Ipécacuanha*

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* Jahresbericht d. Pharmacognosie, 1867, p. 64.

† Pharm. Journ. [2], vol. xi, p. 141.

‡ "The Microscope in Pharmacy" (Pharm. Journ. [3], vol. ii, p. 921).

§ "Remarks on Plants furnishing Varieties of Ipecacuanha" (Pharm. Journ. [3], vol. ii, p. 970).

glycyphlæa, Vogl (Zeits. d. Œstr. Apot.) *Ipécacuanha strié*, G. Durand (Thèse, 19). *Elastic striated Ipecacuanha*, Attfield (Pharm. Journ. [2], vol. xi, p. 141). *Ipécacuanha strié de la Nouvelle-Grenade*. C. Ménier (Thèse Inaug. p. 15). *Ipécacuanha violet* of commerce, Thénot (Thèse, p. 122); C. Ménier (Thèse, p. 15). *Ipecacuanha of St. Martha* and *Carthagena Ipecacuanha* of commerce.

2. "MINOR" STRIATED IPECACUANHA.—*Ipécacuanha des Côtes d'Or* and *Ipécacuanha noir*, Pelletier (Journ. Pharm. vol. vi, p. 261). *Ipécacuanha strié* and *Ipécacuanha noir* (partim), Mérat and De Lens (Dict. Mat. Méd. vol. iii, p. 643); Guibourt (Drog. Simp. 6th edit. vol. iii, p. 94). *Ipécacuanha strié*, Thénot (These, p. 120). *Ipécacuanha strié*, C. Ménier (Thèse, p. 13). *Ipécacuanha striata seu nigra*, Vogl (Zeits. Œst. Apot.) *Brittle Striated Ipecacuanha*, Attfield (Pharm. Journ. [2], vol. xi, p. 141.—*Pharm. Journ., Lond., Feb. 15*, 1873.

BEHAVIOR OF ETHER WHEN IN CONTACT WITH OTHER SUBSTANCES.

By A. Lieben.

In my treatise on "The Origin and Production of Iodoform and on the Application of these Reactions" (*Ann. d. Chem. u. Pharm. Supplm.* 7, p. 221), I have said that when ether is shaken up with water and the water then treated with iodine and potassa no iodoform is formed, if the ether is perfectly pure; but I also observed that it was difficult to obtain pure ether, since the simple contact of ether with water, even at the ordinary temperature, and far more rapidly at 100°, causes the ether to become contaminated with alcohol. I have further investigated this subject by first trying whether perfectly pure ether, when kept alone, remains unaltered, and also, whether contact with water always produces alteration; while I lastly tried the effect of substances usually employed for drying ether. This research appeared to me to be the more interesting, since the high sensitiveness of the iodoform reaction affords a means of detecting slight alterations. When a compound so fixed and stable as ether is subject to changes hitherto scarcely thought of, it seems reasonable to conclude that other substances also undergo alterations, which are not detected for want of reagents.

Ether by itself.—I have in another paper described the methods of making perfectly pure ether; I only mention here that it is best to re-distil the ether so obtained once or twice over sodium, chloride of calcium tubes being fitted to the distilling apparatus to avoid the contact of moist air. Ether so purified, and kept in well-stoppered bottles, continues good for several months; even after fifteen months no iodoform reaction was exhibited, and I therefore conclude that pure ether kept as stated does not become altered, at all events not sufficient to be detected by the iodoform reaction.

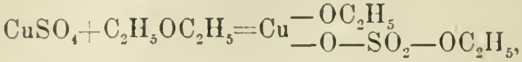
Ether with Water.—I repeated my former experiments by pouring ether and water or ether and dilute sulphuric acid in glass tubes, and after sealing I heated these tubes for twenty-four hours to 100°; on testing the water afterwards I detected a strong reaction of iodoform, due to formation of alcohol, while, on the other hand, a sealed tube, also containing water and ether, kept during the same period of time at the ordinary temperature, did not exhibit this reaction. I also found by separate experiments that when the sealing of the glass tubes is carefully proceeded with there is no chance that any iodoform-producing substance (aldehyde, for instance, due to the action of the red-hot glass on the vapor of ether) can be generated; it is therefore quite certain that when ether and water are heated to 100° alcohol is in a short time formed. The same action between ether and water obtains at the ordinary temperature, but only after the lapse of a considerable time; ether kept with water in well-stoppered bottles exhibited the iodoform reaction after some three or four months, but in some instances the reaction was obtained in a shorter time. Both the ether and water were pure.

Ether and Sodium.—Pure ether kept in contact with small lumps of sodium in a well-stoppered bottle was found after six months to exhibit no iodoform reaction.

Ether and Chloride of Calcium.—Pure ether kept with lumps of freshly-ignited chloride of calcium in a well-stoppered bottle for a period of six months was found, on being tested, to distinctly exhibit the iodoform reaction, and consequently the ether had undergone alteration.

Ether and Caustic Potassa.—Pure ether and freshly-prepared fused caustic potassa kept for six months was found to be unaltered; and the same result was obtained when the ether was kept for the same lapse of time with recently burnt caustic lime. When the pure ether was kept for six months along with freshly-ignited chloride of sodium it exhibited a distinct iodoform reaction, but with freshly-ignited carbonate of potassa no such reaction was obtained after the same lapse of time.

Ether and Anhydrous Sulphate of Copper.—When sharply dried (dehydrated) sulphate of copper and pure ether are kept for six months in a well-stoppered bottle the ether exhibits no physical appearance of change, but on testing the ether it exhibits distinctly the iodoform reaction. A portion of the same ether employed in these experiments was kept alone, and having been tested after six months did not then exhibit any trace even of formation of iodoform. I cannot explain the reason why certain neutral and anhydrous substances ($CaCl_2$,$NaCl$,$CuSO_4$) should have any peculiar effect on ether without entering into hypotheses which are not proved; it appears that basic substances do not act upon ether, while acids and salts affect it. We might suppose that ethylates are formed, for instance:



$$CuSO_4+C_2H_5OC_2H_5=Cu\begin{matrix}-OC_2H_5\\-O-SO_2-OC_2H_5,\end{matrix}$$

and that by the operation of testing for iodoform alcohol is formed by the action of water; but it is also possible that a small portion of the ether is converted into alcohol and ethylen. The main point of interest in these researches is that perfectly pure ether can be kept by itself in well-stoppered bottles without alteration, and also when in contact with perfectly dry and previously thoroughly ignited KHO,CaO,K_2CO_3, and also with pure sodium, but the ether cannot be kept with water, $CaCl_2$,$NaCl$, or $CuSO_4$, because when in contact with these substances it is gradually altered.—*London Chem. News*, *Jan.* 24, 1873, *from Annalen der Chemie und Pharmacie.*

EMULSIONS.

By Herbert G. Rogerson.

A paper on emulsions, recently published in the *Druggists' Circular*, by Mr. P. W. Bedford, was mainly devoted to a consideration of the merits of a combination of gum acacia and glycerin, in the preparation of emulsions of various kinds. Believing, however, that gum tragacanth affords us a mucilage which, when prepared under certain conditions, is capable of giving results in every respect superior to any producible by the combination recommended in the paper, I propose briefly to outline its more advantageous applications and extremely convenient method of preparation. In doing this I am led to recur to a formula sent by me to this Journal* some three years ago, and published under the title of "Cod Liver Oil Cream," which may be taken as a type of this class of emulsions; and the fact of the extensive and successful adoption of that formula having come to my knowledge, emboldens me to reproduce it in a slightly modified and improved form.

Before doing so, however, I may state it as a *sine quâ non,* that the tragacanth employed for this and allied preparations should be of exceptionally fine quality. It should possess a pretty uniform whiteness, and freedom from dark patches and specks, or if these latter be present they should be broken off and rejected. The selected pieces are then cut up into fragments about one-quarter of an inch square, and immersed in soft or distilled water for 48 or more hours in the proportion of about 2½ oz. to the gallon, stirring at intervals to prevent agglomeration. The addition afterwards of a small percentage of glycerin ensures almost indefinite keeping qualities. To avoid disappointment and secure the best results it will be well not to rely on any ordinary sample of the gum, but to apply to one's wholesale house for a small parcel of exceptional quality. In this way we succeeded in obtaining a sample almost free from blemish, and requiring no material weeding; while but for this precaution one might improve but slightly on the Pharmacopœial mucil. tragac., a dark and muddy product.

The formula referred to above, as amended, runs thus—

℞.	Ol. Jecor. Aselli, . . .	℥v.
First shake together.	Ess. Limon.	
	" Amygd. (1 in 16) aa . .	♏ xxiv.
	Spts. Vini Rect. . . .	℥ iss.
	Syrup.	℥ ss.
	Mucil. Tragac. (prepared as above) ad	℥ xvi.

The mere act of shaking together these ingredients for an instant or two suffices to unite them into an elegant semi-transparent and permanent emulsion, with attractive custard-like flavor that can scarcely fail to commend itself to the votaries of "Elegant Pharmacy."

Other oils, as castor, almond, turpentine, etc., or balsams may be substituted for the one above specified. The proportion there given may be held to be only *relative*, the precise quantity of any oil "emulsifiable" by a given quantity of mucilage depending directly upon the degree of viscosity of the latter. If it be desired to combine an oil in much larger proportion than appears in the formula given, this may be effected to an almost incredible extent by substituting brisk stirring in a mortar during the adding of an oil, for the mere agitation that sufficed in the former case. It is probable that a great variety of substances upon which I have not yet experimented may be treated advantageously as above.

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* See American Journal of Pharmacy, 1870, page 247.

My experience has been mainly with the oils of castor, cod-liver, olive and turpentine, and the success attending the use of these was perfect, none of them showing any disposition to separate after many months keeping, and retaining then a degree of sweetness and freshness that proved keeping qualities of a very perfect order.—*Pharm. Journ. and Trans., March* 8, 1873.

MILK TESTING.

By Thomas Garside.

I wish to point out a fact, in connection with the estimation of cream in milk by means of the lactometer, which I have not hitherto seen noticed, namely, the great difference in the results which a slight variation in the temperature produces. In Dr. Hassall's article on the estimation of the cream, given in his work "Adulteration Detected," I do not observe that any account is taken of this; the only reference to temperature which I find being in the following terms:—"Cream forms more quickly in warm than cold weather; and in making comparative observations on a number of samples, it is proper that each should be set aside in lactometers at the same time and for the same period" (p. 225). Provided that the lactometers were all maintained at the same temperature, this method would give accurate results for the samples operated upon; but, as the following experiments will show, no dependence could be placed upon them unless the latter condition were complied with, nor could any set of observations be of use for comparison with another set unless the temperature were maintained at the same point.

In each of the following cases two graduated tubes were filled wit milk from the same pail, as supplied in the usual way by the dealer, and a uniform temperature was maintained during the time mentioned.

I may also state that in several other experiments of which I kept no record, no increase in the quantity of cream was perceived after three or four hours :—

No.	Hours.	Temperature.	Apparent percentage of cream.
1.	4.	45°	14.
		55°	8½.
2.	4.	45°	12.
		60°	8.
3.	2.	45°	14.
		60°	12.

—*Pharm. Journ. and Trans.*, *Jan.* 25, 1873.

FORMULAS FOR POULTICES.*

The article "Cataplasm," in the new *Dictionnaire des Sciences Medicales* has been worked up by M. Brochin as completely as possible to the actual state of our knowledge of this ancient method or treatment. Amongst the opinions of authors and the modern modes of compounding cataplasms, M. Brochin cites those of Cayol, Broussais, Réveillé-Parise, and especially Velpeau and Trousseau. The editor of the *Journal de Médecine*, from whom we quote this article, observes that he has had the opportunity of following the last-named illustrious physician for some years, and never heard him order either a bath or a cataplasm ; occasionally, however, and with a certain air of solemnity, he would order the poultice. This was made nearly as follows :

Extract of Stramonium, or
Extract of Belladonna ;
Extract of Opium ;
Camphor in Powder :
Water. Of each 10 parts. Mix.

A bread poultice having been made, some camphorated alcohol is to be boiled with it ; the paste should then be enclosed in a little muslin or tarletan, and the surface watered with the above mixture. It is then to be applied, and covered with some impervious cloth and a large piece of flannel. M. Brochin leaves out the camphor in powder, and replaces it with ten parts of ether. This topical application, which is rather expensive, can be retained in place several days. Trousseau only employed it in grave cases, such as mono-articular arthritis with acute osteitis and puerperal arthritis. He prescribed calomel simultaneously, and insisted on perfect immobility of the limb. The following is a narcotic poultice prescribed by MM. Bouchat and Desprès:—

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* Practitioner, from the Journal de Médicine.

Powdered Hyoscyamus Leaves;
" Conium Leaves;
" Belladonna Leaves;
" Solanum Tuberosum Leaves;
Linseed Meal. Of each 20 parts.
Decoction of Poppyheads, q. s.

Conium is also used in poultices specially intended for the relief of superficial cancers:

Bruised Carrots, 500 grains;
Powdered Conium Leaves, 30 grains;
Powdered Opium, $\frac{1}{20}$ grain.

The following is intended to act as a diuretic poultice:

Bruised Squill, 100 parts;
Nitrate of Potash, 10 parts.

And this to render the emission of urine less painful:

Bruised White Onions, 6 in number;
Leaves of Parietaria, 50 parts;
Decoction of Marshmallow, q. s.

Both may be applied over the pubis.—*Pharm. Journ.*, (*Lond.*), *Feb.* 1, 1873.

Varieties.

Indelible Ink.—Dr. Bœttger.—3·65 grms. of anilin black are rubbed down in a porcelain mortar with 60 drops of concentrated hydrochloric acid, and 22 grms. of alcohol. This solution is mixed with a hot solution of 1·82 grms. of gum-arabic in 85 grms. of hot water. This ink does not attack steel pens, and is not acted upon either by strong mineral acids or by alkalies. If the anilin black solution is diluted with shellac solution (21 grms. in 85 of alcohol), an anilin black lake is obtained, which is suited for coloring wood and leather.—*Chem. News, Lond., Feb.* 14, 1873

Portable Dry Ink.—At a recent meeting of the Frankfort Polytechnic Association, Professor Bœttger exhibited a novel kind of ink, which is admirably adapted to take on journeys and exploring expeditions. White blotting-paper is saturated with anilin black and several sheets are pasted to form a thin pad

When wanted for use, a small piece is torn off and covered with a little water. The black liquid which dissolves out is a good writing-ink. A square inch of the paper will give enough ink to last for considerable writing, and a few pads would be all that an exploring party need carry with them. As water is always available, the ink is readily made.—*Sci. Amer., March* 1, 1873.

An Indelible Red Ink.—Dr. Elsner states that an indelible red ink can be prepared as follows: Equal parts by weight of copperas and cinnabar, both in fine powder and sifted, are rubbed up with linseed oil with a muller, and finally squeezed through cloth. The thick paste can be employed for writing or stamping woollen or cotton goods, and the color remains fast after the goods have been bleached The reds usually employed are not fast colors, and do not resist the action of bleaching agents.—*Ibid.*

Superior Adhesive Paste.—Take 4 parts by weight of good glue and cover it with 15 parts of cold water; allow it to stand for a few hours, and then gently heat until a clear solution results. Dilute the mixture with 65 parts by weight of boiling water under constant stirring. In the meantime prepare a paste of 30 parts by weight of starch and 20 parts of water, avoiding all lumps. Into this pour the boiling hot solution of glue, under constant stirring, and keep the mixture boiling. After it is cold add 10 drops of carbolic acid. This paste is unusually adhesive. It can be used on leather, pasteboard and parchment, and if it be kept in closed bottles, to prevent the evaporation of water, may be preserved for a long time. In cases where ordinary stock paste will answer every purpose, it is always well to add a few drops of carbolic acid to avoid fermentation or molding.—*Jour. of App. Chem., Feb.*, 1873.

A New Experiment.—Mr. Elihu Thompson has made the observation that tin-foil, if wrapped about a few crystals of chlorate of potassa, can be made to detonate loudly upon being struck smartly with a hammer upon an anvil, or in a mortar; the phenomenon being precisely analogous to the well-known experiment of triturating sulphur and the chlorate. To the best of our knowledge, the observation that such metals as tin can be oxidized in this way, is a new one and worthy of notice.—*Jour. Franklin Inst., March*, 1873.

Pharmaceutical Colleges and Associations.

Philadelphia College of Pharmacy.—At the recent examination of the candidates for the degree of Graduate in Pharmacy the following questions were offered, to be answered in writing:

Chemistry. Professor Robert Bridges, M. D. Session 1872–73.

No. 1 What is the composition of Cyanogen? Mention the officinal compounds in which it is contained; their composition, mode of preparation physical and chemical properties, and state those which are poisonous.

No. 2. How is nitric acid prepared? Explain the process and state the composition of the strongest acid. Give the physical and chemical properties the composition and reaction of the officinal acid.

No. 3. What officinal compound is formed by the action of chlorine and slacked lime? Give its supposed composition with the reactions which take place during its production. To what are its peculiar properties due?

No. 4. What is the chemical name of Borax? Give the sources from which it is derived, its chemical composition and physical properties.

No. 5. What is the chemical name of Epsom Salt? Give its mode of preparation, the impurities it may contain and the mode of detecting them.

No 6. Give the tests by which the mineral acids may be distinguished.

No. 7. In what officinal preparations does iron exist in a condition not to be detected by the more common tests?

No. 8. What are the best antidotes for Arsenic, and the best form and condition in which they should be used?

No. 9. What are the best antidotes for the alkalies, and how do they act?

No. 10. What product is formed by heating cream of tartar in close vessels, and of what does it consist?

MATERIA MEDICA. Professor John M. Maisch. Session 1872–73.

1. Spanish Flies—Give the name of the insect, and where collected; how may the vesicating principle be obtained, in what per centage is it present, and which parts of the animal contain the largest proportion?
2. From the root of which plants, and by what process is Extractum Glycyrrhizæ made; in what modifications is the glycyrrhizin contained in it, and how may its quality be determined?
3. Benzoin.—Where, from what plant and how obtained? Name the principal varieties, give its constituents and how to determine its quality.
4. Nutgalls.—Where obtained? How produced? Give the structure, constituents, varieties and how to ascertain their quality?
5. What plant yields Valerian? Where and in what localities does it grow? Describe the drug and state the difference in appearance and composition, when obtained from different localities.
6 Give the name, natural order and habitat of the plant yielding dulcamara. When should the drug be collected? What are its physical characters and its constituents?
7. Describe mezereon: its botanical origin, native country, physical appearance, constituents and medical properties.
8. What is the source of Alexandria, Bombay and Tinnevelly Sennas? How do they differ from each other and from other officinal leaves. What, if any, are the impurities and how recognized?
9. Cubebs: their botanical origin, native country, time of collection, difference from similar drugs and medical properties of the principal constituents.
10. Give the botanical characters of the natural order of Compositæ, and name the officinal herbs and flowers obtained from it.

PHARMACY. Professor William Procter, Jr. Session 1872–73.

1. When a hollow Sphere, weighing 1000 grains, floating on water at 60° Fahr. has exactly one half of its surface immersed, what is its specific gravity? and what would be the weight of the water displaced if it be entirely submerged?
2. What is the definition of Evaporation in its pharmaceutical sense? What physical laws influence it? What forms of apparatus are used in the laboratory to accomplish it? For what classes of preparations is it chiefly used?
3. State the physical law which enables the chemist to purify a salt, from contaminating small quantities of other Salts, by the processes of solution and crystallization.

4. Describe officinal acetic acid, giving its composition, specific gravity and tests of purity. State briefly the method of obtaining acetic acid from wood and the several names under which it is known in commerce. Also mention all the officinal acetates, and how to distinguish them from other salts and from each other.
5. Describe aconitia as found in the shops; state how it is distinguished from veratria, and by what quality it is recognized. State also the dose of aconitia, how it is usually employed, and name the officinal preparations to which it gives activity.
6. Give a brief general idea of the constitution of fats and fixed oils; give the process for making "Sapo" U. S. P. and that for Emp: Plumbi, with the reactions that occur, and explain the manner of obtaining and purifying the glycerin of commerce.
7. Describe cantharidin, state its best solvents, and give the best process for preparing it; also give the formula for Ceratum cantharidis and Cantharidal collodion.
8. Give the antidotes for poisoning by arsenious acid, tartar emetic, sugar of lead, nitrate of silver, oxalic acid and water of ammonia, and state in what cases soap may be used as an antidote.
9. Give the formulæ for syrup of iodide of iron, infusion of digitalis, solution of tersulphate of iron, compound mixture of iron, fluid extract of ergot, and diluted nitro-muriatic acid
10. Give your reasons why percolation is to be preferred to maceration and expression, in the preparation of extracts, fluid extracts and tinctures, and state what are the chief points to be observed in obtaining success by the former process.

QUESTIONS BY THE EXAMINING COMMITTEE. Session 1872–73.

1. Describe the substance called "Argols"; state its natural source; name the acid it contains, and the base with which it is combined; how the acid is made for commerce; what are the officinal Salts to which it contributes: and how may the acid be distinguished from all other organic acids?
2. State the names of the units of measures of Length, Weight and Capacity in the Metrical system; give their value respectively in inches, troy-grains and fluidounces; and mention in what way the units of measure and weight are determined.
3. What is specific gravity? Solve the following problem:
   Four hundred grains of Sugar weigh in Oil of Turpentine 182·5 grains. The specific gravity of oil of turpentine being 0·870 what is the specific gravity of the sugar?
4. How may Levant and American wormseed be distinguished from each other? from what plants are they obtained? and what causes the activity in each drug?
5. Give the process for making Citrine Ointment; explain the chemical combination.
6. Give the officinal name of the plant from which Extract of Hemlock is made. State the mode of its preparation, and the dose; also the physical characteristics of the plant. Explain the manner in which Hemlock pitch is obtained; give its officinal name, and state whether it is derived from a different source; and if so, give the botanical name of the tree which produces it; describe its physical characteristics, and state where it grows.
   What officinal preparation does Hemlock Pitch enter into, and what is it combined with? Give the mode of preparation.
   From what source do we obtain Oil of Hemlock of commerce?
   Is it officinal?
7. Give the process for making Liquor Plumbi Subacetatis. What is its specific gravity? What officinal preparations does it enter into? Is it for internal or external administration?

Give the process for making Red Iodide of Mercury, and state the reaction which takes place. In what is it soluble?
Give the process for making Green Iodide of Mercury. Is it soluble in alcohol or water?

8. Give the process for making Resin of May-Apple, and the tests whereby the Resins of May-Apple, Jalap and Scammony may be distinguished from each other.
9. What is Opium? what per cent. of Morphia should it contain? and what officinal preparations contain Morphia or Opium, and in what proportion?
10. State which of the following prescriptions it would be proper to dispense, and which improper, and, in the latter case, the reasons:

A. TONIC PILLS.

℞. Quiniæ Sulphatis. . . gr. x,
Pilulæ Ferri Carbonatis, . gr. v,
Strychniæ Sulphatis, . gr. v.

Misce, et fiat massa in pilulas decem dividenda.

S. One to be taken twice or three times a day.

B. For Mr. Thompson.

℞. Antim. et Potassii Tart., . ʒii,
Potassii Nitrat., . . gr. ii,
Spt. Æth. Nit., . . . ℥ss.
Aquæ, ... ℥iiiss.

M. S. Dessertspoonful every 2 hours.

C. For Mr. Jones.

℞. Morphiæ Sulph., . . gr. jss,
Sacch. Alb., . . . gr. xii.

M. ft. chart. no. iv.

S. For pain, one every 2 hours until relieved.

D.

℞. Potassii Iodidi, . .
Extracti Belladonnæ. aa gr. xxx.
Camphoræ, . . .
Iodinii, . . . aa gr. x,
Unguenti, . . . ℥i.

Misce fiat unguentum.

(How would you dispense this prescription?)

E.

℞. Morphiæ Sulphatis, . . gr. ij,
Spiritus Ætheris Nitrosi, . ʒss,
Potassii Iodidi, . . ʒij,
Aquæ Menthæ pip., . . f℥iv.

M. ft. Solutio. Sig. A dessertspoonful for a dose, three times a day.

(What change occurs in this on standing?)

The following specimens were exhibited to the candidates for recognition:

CHEMISTRY.

Calx chlorinata,
Plumbi oxidum,
Sulphur sublimatum.
Ammonii carbonas.
Ferri et Ammonii Sulphas,
Potassii bicarbonas.
Alcohol amylicum.
Acidum aceticum.
Acidum oxalicum.
Potassii chloras.

MATERIA MEDICA.

Ipecacuanha,
Podophyllum,
Liriodendron.
Hyoscyami folia, cut,
Uva ursi,
Arnica,
Pimenta,
Pepo,
Terebinthina.
Crocus adulterated with carthamus and dyed calendula.

PHARMACY.

Potassii bromidum,
Acidum gallicum,
Cinchoniæ sulphas,
Pulvis aloes et canellæ,
Liquor ferri nitratis,
Tinct. digitalis,
Tinct. gentianæ comp.,
Tinct. opii deodorata,
Extract. spigeliæ fluidum,
Oleo-resinæ cubebæ.

EXAMINING COMMITTEE.

Sodii boras,
Zinci acetas,
Pulvis aromaticus,
Senna alexand.,
Cerat. plumbi subacetat.,
Liq. ferri subsulphat.,
Tinct. cardamomi comp.
Tinct. iodinii,
Ext. buchu fluidum,
Ext. sennæ fluidum.

The following report was presented to the Board of Trustees:

The Professors and Examining Committee of the School of Pharmacy respectfully report that the following named candidates, having presented theses with the usual certificates, have been examined, and are now favorably reported for the degree of "Graduate in Pharmacy."

They are set down in the order of merit:

	NAME.	STATE.	THESIS.
1	E. C. Batchelor,	Mississippi.	*Æsculus Pavia.*
2	Nathan B. Danforth.	Pennsylvania.	*Solidago odora.*
3	Richard V. Mattison.	"	*Elegant Pharmacy.*
4	Adam Conrath,	Wisconsin.	*Solidago bicolor.*
5	Herman T. Eberle.	"	*Baptisia tinctoria.*
6	H. G. Keasby.	New Jersey.	*Syrupus ferri iodidi.*

7 Richard T. Chiles,	Kentucky.	*Comptonia asplenifolia.*
8 William G. White,	“	*Preliminary Education.*
9 Frank M. Harper.	Pennsylvania.	*Sodii bicarbonas venalis.*
10 Munroe Bond,	N. Hampshire.	*Biblical Record of Drugs.*
11 S. A. Neppach.	Wisconsin.	*Manganese deutoxide.*
12 E. Harlan Babb.	Pennsylvania.	*Dioscorea villosa.*
13 E. Z. Gross,	“	*Coptis trifolia.*
14 W. C. Brown,	Ohio.	*Antimonii et Potassii tartras.*
15 John E. Cook.	Pennsylvania.	*Botany.*
16 W. G. Moffit.	“	*Emulsions of Cod-liver Oil.*
17 A. H. C. Rowand.	“	*Lactucarium.*
18 Morris S. Guth,	“	*Education of the Pharmacist.*
19 A. A. Apple,	“	*Rubus villosus.*
20 Joseph W. Griscom,	New Jersey.	*Nitrite of Amyl.*
21 A. E. Smith,	Virginia.	*The Advantage of the Study of Botany to Druggists.*
22 G. O. Keck,	Pennsylvania.	*The Ethics of Pharmacy.*
23 L. Stanley DuBois.	New York.	*Pharmaceutical Uses of Glycerin.*
24 J. Howard McCrea,	Pennsylvania.	*Cortex Amygdalæ persicæ.*
25 W. N. Stem,	“	*Syrupus ipecacuanhæ, Syrupus scillæ compositus, Syrupus senegæ.*
26 Charles Scott Brown,	Mississippi.	*Helenium autumnale.*
27 James F. Hurt,	Missouri.	*Our College.*
28 Will. N. Janvier,	Ohio.	*Pharmacy as a Profession.*
29 Joseph V. Antill,	Pennsylvania.	*Prinos verticillatus.*
30 Horace G. Hallowell.	“	*Iris versicolor.*
31 Harry M. Capp,	“	*Pharmacy of To-day.*
32 J. Howard Beck,	New Jersey.	*A Pharmaceutist and his Requirements.*
33 John E. Mathews.	Ohio.	*Pharmaceutical Education.*
34 P. F. Brakeley,	New Jersey.	*Acids.*
35 Charles Schnabel,	Pennsylvania.	*Elixirs.*
36 T. A. Conlyn,	“	*Disinfection.*
37 M. Alvarez y Ortiz.	Cuba.	*Obtainment of Tartar Emetic.*
38 Alfred Helgeson,	Wisconsin.	*Verbena hastata.*
39 Herman Haupt, jr.,	Pennsylvania.	*Osha Root.*
40 Gus. A. Zimmerman,	“	*Iodoform.*
41 H. W. Porter,	“	*Extractum Pruni Virginianæ fluidum.*
42 Henry Kielhorn,	Indiana.	*Ferrum.*
43 Wm. N. Martindell,	Pennsylvania.	*An Examination of Some Brands of Liquorice.*
44 S. D. Addis,	“	*Aloe vulgaris.*
45 W. J. Lerch,	“	*Prinos verticillatus.*
46 James A. Parker,	“	*Scutellaria lateriflora.*
47 Albert F. Stifel,	West Virginia.	*Pharmaceutical Education.*
48 A. S. French,	New York.	*Court Plaster.*
49 David G. Potts.	Pennsylvania.	*Aromatic Astringent Syrups.*
50 Harry G. Kille.	New Jersey.	*Epigæa repens.*
51 Frank C. Dale,	Indiana.	*Experimental Pharmacy.*
52 A. B. Bishop,	Delaware.	*Pharmaceutical Text-books for Beginners.*
53 Edward L. Boyer.	Pennsylvania.	*Pharmaceutical Manipulations.*
54 Thomas D. Brown.	“	*Condurango.*
55 Christopher Petzelt,	“	*Euphorbia ipecacuanha.*
56 C. Carroll Meyer.	“	*Ichthyocolla.*
57 A. B. Stewart,	“	*Collegiate Course in Pharmacy.*
58 J. H. Flint,	California.	*Arctostaphylos glauca.*
59 B. M. Magill,	Pennsylvania.	*Chelidonium majus.*
60 Richard J. C. Williams.	New Jersey.	*Drugs from the Animal Kingdom.*
61 D. W. Marshall.	Pennsylvania.	*Iron in Chalybeate Waters.*
62 J. P. Wood,	Delaware.	*Latter-day Pharmacy.*
63 Henry Schmidt.	Ohio.	*Citric Acid.*

64 E. B. Reichel.	Pennsylvania.	*Nature's Medicinal Resources.*
65 August Hohl,	Michigan.	*Practical Experience.*
66 Allen G. Griggs.	Illinois.	*Aqua.*
67 Charles R. Lange,	Pennsylvania.	*Volatile Oils.*
68 A. P Raser.	"	*The Judicious Arrangement of Shops, and the Better Preservation of Drugs and Medicines.*
69 Worthington Emerson,	"	*Condurango.*
70 G. M. Russell,	"	*Semen cucurbita citrulli.*
71 Herman F. Voshage,	"	*Patent Medicines.*
72 E. Jefferson,	Delaware.	*Cannabis indica.*
73 J. Adam Wiegner,	Pennsylvania.	*Dracontium fœtidum.*
74 Harry J. Nice.	"	*Mistakes in Prescriptions.*
75 James L. Yost,	"	*Lycopus Virginianus.*
76 Saml. W. Martin.	"	*Heracleum lanatum.*
77 F. E. Miller.	"	*Anemone Ludoviciana.*
78 R. Willard, jr.,	New Jersey.	*Petroleum*
79 J. K. Young,	Pennsylvania.	*Cypripedium pubescens.*
80 O. L. Smith,	Georgia.	*Mercury and its Preparations.*
81 S. W. Fairchild.	Connecticut.	*Legitimate Pharmacy.*
82 W. C. Gill,	Pennsylvania.	*Glycerin in Fluid Extracts.*
83 Frank P. Yergin,	Ohio.	*Cytisus scoparius.*
84 J S. Spriggs.	Illinois.	*Panax.*
85 J. Morris Jones.	Pennsylvania.	*Benzoin odoriferum.*
86 W. C. Nicholas,	"	*Cosmolin.*
87 Paul Bridger.	West Indies.	*Protoxide of Hydrogen.*
88 James W. Hommann,	Pennsylvania.	*Hamamelis virginica.*
89 Eugene D. Ritter.	"	*Atropa belladonna Toxicologically considered.*
90 G. Louis Truckenmiller,	Illinois.	*Hamamelis virginica.*
91 A. R. Housekeeper,	Pennsylvania.	*Unguentum Hydrargyri.*
92 A. B. Rohn,	"	*Pancreatin.*
93 William Delker.	"	*A Country Drug Store.*
94 F. Radefeld.	"	*Aqueous Fluid Extract of Senna.*

(Signed) Robert Bridges,
John M. Maisch,
William Procter, Jr.,
Professors.

William J. Jenks,
Wm. B. Webb,
Wm. McIntyre,
Joseph P. Remington, *Committee.*

The fifty-second annual commencement took place, at the Academy of Music, on the evening of March 18th, when the degree of Graduate in Pharmacy was conferred upon the gentlemen named above by the President of the College, Mr. Dillwyn Parrish, followed by the valedictory address, by Prof. Robert Bridges, M.D. Mr. W. N. Stem, in a neat and well delivered address, presented to the College, in behalf of the graduating class, a splendid air pump and electrical machine, which, on the part of the College, were received by the Committee on Apparatus through Mr. Chas. Bullock. The numerous presents, consisting mainly of bouquets and books, sent for the graduates by their friends, were distributed by graduates of the preceding years.

A very large number of members and friends of the College had assembled upon the stage, and the vast house was thronged with an attentive audience. The music, by the Germania orchestra, under the leadership of Mr. Geo. Bastert, was excellent, and the arrangements made by the Committee could not have been better.

In the midst of these joyous and festive scenes the crape worn by the graduates upon their left arms reminded us of our departed friend Edward Parrish, who, two years ago, had, in the same place, spoken the parting address to the then graduates.

Class on Toxicology.—At an adjourned meeting of the Class, held March 6, 1873, at the Philadelphia College of Pharmacy, H. Haupt being President, and J. W. Worthington, Secretary, it was unanimously

Resolved, That the thanks of the Class on Toxicology are hereby tendered to Professor John J. Reese, for the able manner in which he has presented his subject, the number, variety and aptitude of his illustrations, and for the uniform care and anxiety displayed by him to make our relations mutually pleasant and agreeable.

Also, that the Secretary be directed to forward a copy of this resolution for publication in the American Journal of Pharmacy.

J. Willits Worthington, *Sec'ry.*

The Annual Meeting of the Alumni Association of the Philadelphia College of Pharmacy was held in the College Hall, the preliminary session on Monday evening, March 17th, and the general session on Tuesday afternoon, March 18th. At the first session the President read his Annual Address; the minutes of the last annual meeting, and also those of the several meetings of the Executive Board were read and approved. After the usual business of the Association, Mr. H. Ed. Wendel entertained the Association by reading a paper entitled "The Perplexities of a Drug Store." At the general session movements were inaugurated looking to make our annual gathering more interesting. Wm. C. Bakes was appointed, and C. L. Eberle as alternate, to deliver an address to the Association at its next meeting, which will be its tenth anniversary.

The Executive Board was directed, in addition to the medal for the student having the highest average, to award suitable prizes for proficiency in such branches as in its judgment is advisable.

C. L. Eberle, the retiring President, presented on behalf of the Association, the Alumni Medal to E. C. Batchelor, of Macon, Mississippi, he having received the highest average.

An election for officers was held with the following result: President, Clemmons Parrish; 1st Vice-President, E. Chiles; 2d Vice-President, Jos. P. Remington; Recording Secretary, Wm. McIntyre, 2229 Frankford Avenue, Philadelphia; Corresponding Secretary, H. Ed. Wendel; Treasurer, E. C. Jones, S. E. corner 15th and Market street, Philadelphin; to fill vacancies in the Executive Board, E. McC. Boring and R. V. Mattison; Trustee of Sinking Fund, T. S. Wiegand.

The Secretary was directed to publish the Annual Report, containing the Valedictory Address of Professor R. Bridges, M. D.

The meeting adjourned. Wm. McIntyre, *Secretary.*

Massachusetts College of Pharmacy.—The annual meeting of the Massachusetts College of Pharmacy was held on Monday, March 3d, at its new rooms, No. 8 Boylston street, and, despite the severe storm, was more largely attended than for many previous years, a number of members being present from various parts of New England.

The President, Mr. S. M. Colcord, in his address congratulated the College upon the success which has attended its movements during the past year, and the brilliant prospects for the future. The better facilities which the new laboratory affords for practical instruction have made the lectures more interesting and valuable, and the number of students has been larger than at any previous season.

The report of the Treasurer showed the financial condition of the College to be as favorable as at any previous year, while the expenditures have been much larger than heretofore.

Reports were read from various Committees on Library, Cabinet Instruction, etc. Donations of books, specimens and funds were gratefully acknowledged.

Professor Markoe gave an entertaining account of the meeting of the British Pharmaceutical Society at Brighton last summer; an interesting discussion upon legislation in reference to the practice of pharmacy took place, and other matters relating to the advancement of pharmaceutical science were considered.

The following officers were elected for the ensuing year: President, S. M. Colcord; Vice-Presidents, C. A. Tufts, B. F. Stacey; Recording Secretary, H. W. Lincoln; Corresponding Secretary, G. F. H. Markoe; Treasurer, Ashel Boyden; Auditor, Thomas Hollis; Trustees: R. R. Kent, J. S. Melvin, J. S. Orne, C. I. Eaton, S. A. D. Sheppard, Thomas Doliber, C. E. Tappan, E. L. Patch.

New York College of Pharmacy.—The annual meeting was held on the 13th of March. We have not been advised of its proceedings, nor has the promised list of graduates reached us. Of the transactions of the Alumni Association of this College, only the address of its President, Mr. D. C. Robbins, has been sent.

Maryland College of Pharmacy.—At the 21st annual commencement, which took place on the 11th of March, the degree of Graduate in Pharmacy was conferred upon the following gentlemen:

J. M. Benzinger, Maryland, Iris versicolor; J. C. Cronhardt, Jr., Maryland, Adiantum pedatum; C. C. Habliston, Maryland, Tinctures; J. H. Livingston, Florida, Asarum Canadense; J. R. Marshall, North Carolina, Ancient Pharmacy; H. Nordmann, Maryland, Med. prep. of Manganese; And. Petz, Jr., Maryland, Hydrargyrum; Thomas Shermer, Maryland, Iris versicolor.

Seven first course students were by their examination entitled to honorable mention.

The honorary degree of Doctor in Pharmacy was conferred upon Edward R. Squibb, M.D., of Brooklyn, N. Y., and Benjamin Lillard, Nashville, Tenn.

The valedictory address was delivered by Hon. C. E. Phelps.

The annual meeting of this College took place March 13th, at the hall of the College, President J. Faris Moore, Phar. D., in the chair. The minutes of the previous meeting and of the Board of Trustees were read by the Secretary, Dr. E. Eareckson, and approved. The Committee on unofficinal formulas reported that the manuscript was almost entirely in the hands of the printer.

The Committee on the Pharmacopœia reported through its Chairman, Jos. Roberts, Phar. D., on the dismissals and additions, and through Mr. Louis Dohme, on the changes in the processes of the new pharmacopœia. These reports, when finished, were ordered to be printed and to be circulated among the medical profession.

Dr. R. Murdoch delivered a lecture on botany, the subject being well illustrated by drawings. A vote of thanks was tendered to the lecturer, and a resolution introduced by Mr. J. F. Hancock, and passed, advocating the establishment of a botanical garden in one of the public parks, and a chair of botany in the College. A Committee to act and report on this resolution was appointed as follows: Messrs. J. F. Hancock, Jos. Roberts, Louis Dohme, J. J. Smith and N. H. Jennings.

After the reading by Mr. J. F. Hancock of the report on deceased members, Professor Moore exhibited several pharmaceutical novelties which had been placed on exhibition; also a number of preparations of the new pharmacopœia, about which subjects an entertaining and profitable discussion took place.

Mr. Louis Dohme read a paper on the oleates of mercury and morphia,* after which the College adjourned.

On the evening of the same day a pleasant reunion took place at the Rennert House, where the members of the Maryland College with their invited guests assembled, to hear first the President's address by Professor J. F. Moore, and then the annual address delivered by Professor I. J. Grahame. Both were listened to attentively, and besides retrospects contained many valuable suggestions. The company afterwards sat down to a sumptuous repast, and after justice had been done to all the good things upon the table, toasts were offered and responded to until the meeting adjourned.

The Cincinnati College of Pharmacy, which, during the past session, has had a class of 51 students, on March 12th conferred the degree of Graduate in Pharmacy upon the following gentlemen: William E. Kieley, Andrew W. Bain, Jos. H. Feemster, Augustus G. Luken, Chas. P. Rendigs, Henry Wagner, Chas. E. Ferris, John E. Martin, Gustav Weisbrodt, George D. Pinger.

Professor J. F. Judge gave a historical sketch of the rise of pharmacy, and alluded to the efforts made in Cincinnati since 1849 to establish a pharmaceutical educational institution, which have resulted in the organization of the present College.

The valedictory address on behalf of the College was delivered by Judge Stallo, who in the course of his remarks, said:

"I honor this school the more, gentlemen, from the fact that it does not receive aid from the State or city. I expect far more from an institution which grows out of the necessities of a community or section of country than from one which springs from the ambitious devices of political bodies. National bureaus of education are being established by bodies of politicians. I knew a man who is now a President of an agricultural college established by legislation. Some years ago he came to my office, and wanted me to help him to a consulship or collectorship, or, in fact, anything.

"I do not believe that the public will gain at all by the actions of these politicians in these directions. They are very unfit men to manage such a subject.

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* The paper is printed on page 158 of the present number.

though they may do very well to manage street railroads. Nature lets functions develop organs. The law of nature is spontaneity and self help."

The valedictory, on the part of the class, was delivered by Jos. H. Feemster.

After the exercises closed, a goodly company adjourned to the festive board, where a fine collation was set, to which over one hundred pharmacists, physicians and invited guests devoted their attention

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The Louisville College of Pharmacy, acting under a charter previously obtained through the Jefferson County Court, Ky., at a meeting, held March 10th, 1873, re-organized under a special charter, granted by the Legislature, which requires the election of twelve directors. The following gentlemen were duly elected for the current year: F. J. Pfingst, Wm. G. Schmidt, E. Scheffer, John Colgan, P. P. Sutton, F. C. Miller, C. L Diehl, V Davis, S. F. Dawes, J. A. McAfee, B. F. Alford and E. N. Woodruff. The directors organized by electing C. L. Diehl, President; E. Scheffer and B. F. Alford, Vice-Presidents; F. C. Miller, Recording Secretary; William G. Schmidt, Corresponding Secretary; S. F. Dawes, Treasurer, and J. A. McAfee, Curator.

The directors, some time since, appointed a board of trustees, consisting of Messrs. Schmidt, Davis, Colgan, Sutton and Pfingst, for the purpose of creating a building fund to enable the College to erect in the future a suitable edifice for the growing school. So far, the trustees for the first year have reported monthly subscriptions to the amount of $996, with the prospect of more. This fund is deposited in a bank paying interest at the rate of six per centum per annum, computable every thirty days.

The following matriculants of the school passed a successful examination at the close of this year's session: Ed. S. Anderson, John Loomis, Henry Voigt, Ed. D. Caldwell, Chas. R. DeKress and Phil. G. Beutel.

St. Louis College of Pharmacy.—This College has been in successful operation during the past winter with a class numbering 23 students, several of whom were expected to take their degree in March. During the past two years the College has been the recipient of many valuable donations. Principal among the contributors to its cabinet and collection of philosophical instruments may be mentioned: The Chicago College of Pharmacy; E. R. Squibb, M.D. Brooklyn; McKesson & Robbins, N. Y.: Hartmann, Laist & Co, Cincinnati; Herring & Co., and F. C. Calvert, London, Eng.; E. Scheffer, Louisville, Ky.; W. J. M. Gordon, Cincinnati; Powers & Weightman, Bullock & Crenshaw, and John Wyeth & Bro., Philadelphia; Jeremiah Quinlan, New York; Cheney, Myrick, Hobbs & Co., and B. O. & G. C. Wilson, Boston; Hernstein, New York; J. L. Lemberger, Lebanon, Pa., and G. Mallinckrodt & Co., Larkin & Scheffer, Meyer Bros. & Co., J. S. Merrill, Richardson & Co., Wm. H. Crawford, Theo. Kalb, Chas. Habicht & Co., and M. W. Alexander, St. Louis.

The Ontario College of Pharmacy held its semi-annual meeting February 5th, Mr. Lyman, President, in the chair. The delegation to the Cleveland meeting of the American Pharmaceutical Association made a verbal report.

It was then, on motion of Professor Shuttleworth, seconded by Mr. Saunders, resolved "that the certificates of proficiency or the diplomas of the Pharmaceutical Society of Great Britain, the Pharmaceutical Association of Quebec, and the Philadelphia College of Pharmacy be recognized by this College, provided that the holder of such diploma has been four years in business, and the production of such diploma shall be considered by the Board of Examiners as sufficient evidence of the qualifications of the holder thereof, provided such resolution is in harmony with the Pharmacy Act."

The reports of the Registrar, the Examining Board and the Treasurer were read arrangements were made for the election of Councillors in June next, and votes of thanks passed to the retiring officers and to the Business Editor of the Canadian Pharmaceutical Journal, Mr. Henry J. Rose.

The following gentlemen were elected honorary members of this College: Prof. Redwood, Prof. Attfield and Mr. H. B. Brady, of Great Britain; Dr. E. R. Squibb, of Brooklyn and Prof. J. M. Maisch, of Philadelphia.

Pharmaceutical Society of Great Britain.—At the pharmaceutical meeting held March 5th, Professor Attfield read a paper by Chas Symes, Ph. D., entitled "Legal Pharmaceutical Preparations." Mr. Umney exhibited several fluid extracts, illustrative of American Pharmacy, and explained the processes of the new United States Pharmacopœia.

He said, as far as one could judge, the aim of our American friends had been to economize alcohol, labor and fuel, of course not losing sight of the most essential points—reliability and stability of the extracts themselves. As to the elegance of these preparations, he would ask the meeting to judge. He was personally of opinion that they far surpassed the fluid extracts of British pharmacy, as prepared by several aqueous infusions of the drug, and concentration by evaporation. He might add the preparation of taraxacum was much stronger than any officinal preparation we have of the same root in our Pharmacopœia; it is, at least, ten times the strength, as far as the weight of dry taraxacum root it represents, as the succus taraxaci of the British Pharmacopœia, and has therefore a more decided bitter flavor.

Mr. Sandford said that he had examined with interest the specimen of fluid extract of pareira brava, as it was a preparation to which he had given considerable attention, and he was of opinion that it by no means excelled, if even it were equal to, the preparation made according to the British Pharmacopœia.

During a discussion between Messrs. Gerrard and Mackay several mixtures were mentioned as having been experimented with as bases for suppositories and pessaries. A mixture of gelatin and glycerin is still used in Edinburgh. A combination of 80 glycerin and 20 soap is solid on cooling and easily moulded, but in a few hours is covered with an exudation of glycerin. Equal parts of theobroma oil and paraffin fused together yield a combination which seems to offer the advantage of being sufficiently hard, and yet to soften readily at the temperature of the body.

Professor Redwood then spoke at length on the proposed additions to the British Pharmacopœia, discussing the processes of different pharmacopœias and the results of his own experiments.

Pharmaceutical Society of Paris.—Mr. Regnauld presided at the meeting held January 8, at which the following members were added to the Committee on the Universal Pharmacopœia, previously appointed: Messrs. Buignet. Lefort. Mayet, Jungfleisch, Duquesnel and Mehu; Mr. Bussy was appointed honorary president of the committee.

Mr. Limousin exhibited wafers stamped of the size of a five franc piece; two pieces of these wafers form a capsule, in which pulverulent medicines may be taken, the name being printed or written on the wafer.

Mr. Jungfleisch reported on his researches concerning various transformations of tartaric acid, the synthesis of these bodies by means of bibromosuccinic acid and the production of tartaric acid acting upon polarized light.

Mr. Latour read a paper on the syrups of tolu and tar, in which these substances are emulsionized; the syrups are of an acrid taste and, though offering various advantages, must not be substituted for the officinal syrups. The formulas are as follows:

Take of	Balsam of Tolu, . .	100	grams.
	Sugar, . . .	300	"
	Powdered Gum Senegal, .	100	"
	Water, . . .	600	"
	Simple Syrup, . . .	2400	"

The balsam is carefully triturated in a porcelain mortar with the sugar and gum until an intimate mixture and fine powder is obtained, which is then poured into a tinned copper kettle, previously heated to 100° C. A sufficient quantity of boiling simple syrup is added, afterwards the water, the trituration and the application of heat being continued until the balsam is fused and thoroughly emulsionized; the remainder of the hot syrup is then added, in small quantities, the whole mixture raised to the boiling point and strained, to separate impurities and a small quantity of resin. The preparation weighs three kilograms, and a tablespoonful represents 30 grams of syrup, or 1 gram of tolu.

Syrup of emulsionized tar is made in the same manner from 100 grams of tar which has been washed with boiling water. 600 grams of sugar, 100 grams powdered gum Senegal, 400 grams water and 2000 grams simple syrup.

A mixture of the two syrups is better tolerated than the tar syrup alone; the latter might probably be employed for the extemporaneous preparation of tar water.

At the session of February 5th, Mr. Boudet directed the attention of the society to propylamina, which has been extensively used, and which, as prepared by the action of potassa upon herring pickle, contains besides propylamina also trimethylamina and ammonia; he censures physicians who, before undertaking long experiments, do not assure themselyes of the purity of the products with which they experiment. The society directs the appointment of a committee to report on this subject. Messrs. Boudrimont, Boudet, Jungfleisch, Adrian and Wurtz were appointed At the suggestion of Messrs. Blondeau, Boudet and others, the subject of hyoscyamia was referred to the same committee.

Mr. Guichard stated that he and Mr. Delpech suggested, in 1870, the employment of an alcoholic solution of potassa in the preparation of cantharidal plaster, and claims priority to the suggestion of Mr. Rother, made last year.

After the election of three corresponding members the society adjourned.

The Pharmaceutical Institute of the University of Strassburg has been placed in charge of Prof Dr. F. A. Flückiger, formerly of Bern, Switzerland.

Editorial Department.

Bogus Diplomas Again.—In our last volume we have repeatedly referred to the nefarious trade in bogus diplomas which had its head-quarters in Philadelphia The illegal transactions having been proved before a committee appointed by the Legislature of Pennsylvania, that body promptly repealed the charters of several so called universities and colleges.* We are sorry to have to inform our readers that this repeal of its charter appears to be invalid in the case of at least one of these concerns, as we learn from the following, which we clip from a newspaper of this city:

"Judge Agnew of the Supreme Court, has decided that the Legislature has no power to repeal a charter granted prior to the constitutional amendment of 1857, and that a committee of the Legislature has not the judicial power to investigate and declare that a corporation has been guilty of unlawful acts. The opinion was in the case of Allen *vs.* Buchanan, in which the validity of the Eclectic Medical College charter was in question, and the Court decides that the Act of 1872, repealing the charter, was without legislative force and void. 'The corporation,' said the Judge, 'is entitled to a trial in due course of law, to ascertain its breach of duty, before its charter can be taken away. A franchise is a valuable privilege, and is property in the contemplation of law; and the body possessing it is as much entitled to a judicial determination of its right or want of right to hold it as a natural person is of his right to his lands or his goods.'"

Meanwhile the business of selling diplomas has been going on uninterruptedly in Europe. The headquarters of the European agency appear to have been established in Jersey, Great Britain, and one Dr. P. A. van der Vyver appears to act as chief commissioner for several of those concerns who were supposed to have been swept out of existence by legislative authority. Advertisements have appeared in various publications in Germany, Austria, Spain, and probably other European countries, advertising, as we have been informed, the Eclectic College of Medicine, the University of Philadelphia, etc., as willing to grant to those who are hungry for cheap honors, and in consideration of a round sum of money, any desired degree *in absentia.*

We call upon our European cotemporaries to expose this swindle, and hope that measures may be devised and proceedings instituted in this city, which will bring the home offenders to a speedy justice, and put a stop to a business which has for too long a time disgraced the fair name of a city, a State, and, in fact, of our whole country.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Manual of Chemical Analysis as Applied to the Examination of Medicinal Chemicals. A Guide for the Determination of their identity and Quality, and for the Detection of Impurities and Adulterations. For the use of Pharmaceutists, Physicians, Druggists and Manufacturing Chemists, and of Pharmaceutical and Medical Students. By Frederick Hoffmann, Ph D., Pharmaceutist in New York. New York: D. Appleton & Co., 1873. 8vo., pp. 393.

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* See American Journal of Pharmacy, 1872, page 191.

A work of this kind has long been needed, and for this reason alone the volume would be heartily welcomed, even if it had been less complete than it is.

The book is divided into two parts, the first of which treats of operations, reagents and systematic analyses, including the volumetric estimation of those compounds to which this mode of examination is especially applicable. The first two chapters consist mainly of practical instructions, without entering unnecessarily into detail, concerning the principal operations and the nature and preparation of the reagents. The following chapter, comprising 15 pages, treats in a clear and concise manner of the systematic course of chemical analysis, and has a table appended, showing the deportment of the compounds of the common metals with some of the general reagents, such as acids, alkalies, ammonium, sulph hydrate, water, etc. The chapter on volumetric analysis is devoted first to a description of the requisite apparatus and their use, which is followed by accounts of the different kinds of volumetric analysis, performed by saturation (neutralization), precipitation, oxidation and deoxidation.

Part II is the most important part of the work before us, giving an account of the medicinal chemicals and their preparations, their physical and chemical characteristics, and directions for the examination of their quality and purity. About two hundred compounds and preparations are here enumerated in alphabetical order, and fully considered in accordance with the object of the work. The nomenclature adopted in the alphabetical arrangement is that of the new United States Pharmacopœia, the Latin officinal names being first given, followed by the Latin synonyms in use in this country and in Europe, and finally by the common English names. There are but few deviations from this arrangement, potassa and soda being considered under "Potassii hydras" and "Sodi hydras," chloral under "Chlorali hydras," and the officinal pyrophosphate of iron under "Ferri pyrophosphas et ammonii citras," while under the officinal name "Ferri pyrophosphas" the pure salt is described.

Each compound is carefully described according to its physical properties, its solubility in different menstrua, simple and chemical, and its behavior to reagents (tests of identity). This is followed by the *Examination*, under which heading the various accidental impurities, resulting from the processes followed in making the chemicals, or from insufficient purification, and also the intentional adulterations and substitutions are considered, and their detection clearly and concisely described. References to the description of volumetric assay, noticed before, are made, wherever the compounds allow of such an analysis, within the scope of the work.

An appendix contains several valuable tables, and the work concludes with a complete index, embracing the Latin and English terms.

This brief outline of the contents of this valuable work is scarcely sufficient to convey a correct idea of all the information presented in it. That directions for estimating the morphia strength of opium and its tincture, the amount of quinia contained in cinchona bark, etc., have found appropriate places, might have been expected.

The descriptions and directions given in the work are clear and precise, so that they are readily understood by those having a knowledge of the fundamental principles of chemistry and of the ordinary chemical manipulations, many of which, also the more important apparatus, are well illustrated by very good wood-cuts. The author has consulted the latest literature, and describes all the latest processes which appear to possess the merit of ready execution and sufficient accuracy for the purposes in view.

The publishers have presented the work in an attractive style, and we feel sure that those whose vocation requires the frequent or occasional examination of medicinal chemicals, will find it what the author designed it to be—a guide for the determination of their identity and quality.

THE

AMERICAN JOURNAL OF PHARMACY.

MAY, 1873.

ANALYSIS OF *COPTIS TRIFOLIA*, SALISB.—GOLDTHREAD.

By Edward Z. Gross.

Condensed from an Inaugural Essay.

The essay, which was accompanied by a very good pencil drawing of the plant with flowers and fruit, first gives the botanical history, and, after some general remarks on the properties, proceeds to describe the chemical examination.

One ounce of the herb, including rhizome and roots, was coarsely ground and macerated for twenty-four hours in cold water, then transferred to a displacement apparatus and exhausted with the same menstruum, when twelve fluid-ounces were obtained. This was of a dark yellowish brown color, and had the odor and very bitter taste of the plant. Neither red nor blue litmus paper were affected by it, proving *absence of free acids or alkalies.* The presence of albumen was clearly proven by coagulation with heat.

Tincture of chloride of iron produced simply a dark coloration without precipitation, and without disappearing when heated; the infusion was likewise unaffected by solutions of gelatin and of quinia, proving the total absence of gallic and tannic acids.

The dregs in the percolator were next boiled in water a short time, strained and allowed to cool; to the filtered decoction a few drops of solution of iodine, in iodide of potassium, were added, without producing any change. *No starch.* As only a small portion of the infusion was used in the foregoing experiments, the balance was heated to boiling to coagulate the albumen, filtered and then evaporated, yielding an extract of a brownish black color, which was entirely soluble in water, and was possessed of the characteristic bitterness and odor of the plant.

Alcohol dissolved about one-third of the extract, leaving a residue possessed of a slightly bitter aftertaste. It was altogether soluble in water and gave no precipitate with a solution of iodohydrargyrate of potassium, while the alcoholic solution gave a dense one. The alcoholic solution on evaporation yielded a beautiful garnet colored extract, wholly soluble in boiling, and only partially so in cold water.

A solution of the original extract was made with water, and this solution tested for sugar by Trommer's test, when the red oxide of copper was precipitated. The test of burning was also tried, and the odor of caramel being given off, the presence of sugar was clearly proven, though the reduction in Trommer's test, taking effect more readily after the solution had first been boiled with hydrochloric acid, caused doubts as to whether in a free state or as a glucoside. It might readily be supposed in the latter state.

One ounce of the herb was macerated with ether for seven days, when it was placed in a displacement apparatus and exhausted, and the percolate, which was of a greenish black color, on spontaneous evaporation, yielded an extract of the same color, which was proven to be fatty resin by saponification when boiled with caustic potassa or soda. The resin was insoluble in water, hot or cold, but completely soluble in alcohol, and proved to be the same as that obtained by alcohol after the plant had been exhausted by boiling water. It was only partially soluble in petroleum-benzin, and had an acrid taste. While evaporating, the resin seemed to separate from the remainder of the solution, which looked like a whitish fatty oil.

Investigation of the alcoholic tincture, and principles contained therein.—Eight avoirdupois ounces of coptis were exhausted with alcohol, yielding a dark greenish brown tincture of intensely bitter taste. This tincture was evaporated to a comparatively small bulk, and strongly acidulated with hydrochloric acid, when a dark green resin-like precipitate was thrown down, which was separated by filtration; a sufficient quantity of water was added to the filtrate, and the alcohol driven off by heat. The addition of water caused a copious precipitation of a dark green resin-like substance, which accumulated as evaporation was continued, and assumed a dark brown and granular appearance on cooling. This, and a precipitate in every way similar which took place on further evaporation, will be noticed hereafter. The supernatant liquor, after the addition of more hydrochloric acid, was set aside for awhile and deposited a brilliant yellow mass of a crystalline character. The mass was redissolved in hot water, and again set aside to crystallize, *Berberina*,—No. 1. The precipitate in the last detailed experiment, after the addition of more hydrochloric acid, had a somewhat crystalline structure. This was boiled in water, forming a solution of bright yellow color, and leaving a resinous mass soluble in alcohol and ether. When the solution was acidulated with hydrochloric acid, a yellow precipitate was formed, which re-dissolved when heated; this was set aside for further examination—No. 2.

The mother liquor from crystals No. 1 was heated with a view to driving off some of the acid, when a resin was precipitated similar in every respect to a deposit spoken of before. This was soluble in alcohol, of very bitter taste, and, on spontaneous evaporation, yielded an amorphous bitter mass possessed of the odor of the plant. This was examined with the crystals. After separation of the substances just mentioned from the liquor, it (the liquor) was supersaturated with carbonate of sodium, when a precipitate occurred, which, on being collected and thoroughly washed, was treated with alcohol, yielding a bright yellow tincture, which was allowed to evaporate spontaneously. The alkaline liquid was next shaken with amylic alcohol, giving to it a bright yellow or orange color, which color was readily yielded to water acidulated with sulphuric acid. As the solution of the precipitate given by carbonate of sodium on evaporation yielded no crystals, it was supposed that a sufficient excess of carb. sodium had not been used; so the acidulated solution obtained from amylic alcohol was treated with carbonate of sodium in considerable excess, when a precipitate was obtained which, on being well washed with aqua ammoniæ, became almost colorless. This was dissolved in water by the aid of hydrochloric acid, evaporated to syrupy consistence and allowed to crystallize, No. 3. The supernatant liquid from the soda precipitate was acidulated with sulphuric acid, treated with alcohol to remove sulphate of sodium, then evaporated to a small bulk, and set aside—No. 4.

Examination of the crystalline substances.—The crystals from Nos. 1, 2 and 4, all answered the tests peculiar to and distinguishing *Berberina*, though those of No. 4 were plainer and no doubt purer—the first being more or less contaminated with coloring matter. These tests were as follows:

Sparing solubility in ether and alcohol when cold, more soluble in ether when hot, and entirely so in boiling alcohol. They were dissolved by sulphuric acid, giving to the solution an olive green color; by concentrated nitric acid, a deep red coloration, evolving nitrous acid fumes. Caustic alkalies dissolve them, turning them deep brown. Their taste is extremely bitter.

The extractive was to some extent soluble in water, entirely so in alcohol; insoluble in petroleum benzin and ether. It was not precipitated from its solution by alkalies, but on being boiled with caustic potassa for a while, it combined with it. It was entirely amorphous, and its acid solution gave no precipitate with iodohydrargyrate of potassium.

The crystals, No. 3, were noticed to be different from *Berberina*, first, by their being colorless, and next by the difference in the form of the precipitate with iodohydrargyrate of potassium; berberina being flocculent while this was crystalline. This was separated from berberina by an alkali, therefore insoluble in alkalies, but proven afterwards and precipitated by them from solution; in this resembling hydrastia and oxyacanthin. Boiled with caustic potassa, it evolves the odor of ammonia, proving presence of nitrogen. It restores blue color to reddened litmus. Heated on platinum foil, it puffs up, and at length disappears. With sulphuric acid and binoxide of manganese or nitrate of potassium, it dissolves, giving sulphurous (?) acid. With cold sulphuric acid it simply dissolves, but on heating, a purplish color is produced. In this test it again resembles hydrastia. Nitric and hydrochloric acids dissolve it without change. The crystals were re-dissolved in water, in which they were freely soluble, and from the solution precipitated by ammonia. Now we have a white powder insoluble in alcohol or water.

We have thus far proven that it has the appearance and answers the tests of an organic alkaloid, and that it forms at least one crystallizable salt with an acid. From all appearances, it bears the same relation to Coptis that hydrastia does to *Hydrastis canadensis*, or berbina to *Berberis vulgaris*, and as its tests, compared with the tests characteristic of the two before-named, prove it to be *not* identical with either, I see no reason why it might not, for the present, or until further developments are made at least, be called *Coptina*. We have not had any opportunity of finding out its medical properties.

Examination of the ashes.—One avoirdupois ounce of Coptis was incinerated in a crucible, and the result was twenty (20) grains of ashes, which, on analysis, were found to contain silica, carbonic acid, iron, aluminium, calcium, magnesium and potassium.

From the foregoing experiments, the organic constituents of *Coptis trifolia* may be briefly summed up as follows:

Albumen, resin and fixed oil, coloring and extractive matter, ligneous matter, sugar, berberina, coptina. The herb yields from 4 to 5 per cent. of ashes, of which one-tenth is silica. This analysis, proving absence of tannic and gallic acids, the plant cannot have astringent, but simply bitter tonic properties. The bitterness of Coptis is mainly due to berberina. To such as want to use the root in a concentrated form, I would recommend the alcoholic extract as a neat and elegant preparation, containing *all* the active properties.

ARCTOSTAPHYLOS GLAUCA, LINDLEY.—MANZANITA.

By John Henry Flint.

From an Inaugural Essay.

Arctostaphylos glauca, one of the many manzanitas, is a small tree or shrub, indigenous to California, growing principally upon the western slope of the Sierras, and preferring dry and rocky localities. The wood is very hard, white, with a dark-red heart; the bark is reddish-brown, thin, smooth, and adheres very closely to the wood; the leaves are pale-green, and quite numerous.

A decoction of the leaves is held in high esteem by the natives in the localities where it is found, as a specific in the treatment of diarrhœa and gonorrhœa.

The following description is translated from De Candolle's "Prodromus:"

"*Arctostaphylos glauca*, Lindley. Smooth glaucous; leaves ovate-oblong, acute, coriaceous, with the base very obtuse; racemes short, compound; bracts inferior, scale-like; fruit ovate." (The fruit is usually depressed globose.)

A quantity of leaves was reduced to a coarse powder, decocted with water, the decoction strained, and the tannin removed by a solution of gelatin; to the filtrate neutral acetate of lead was added, the precipitate separated and washed.

Through the filtrate and washings, hydrosulphuric acid was passed until all the lead was precipitated; the sulphide of lead was removed by a filter, and the liquid evaporated to a soft extract, treated with alcohol, filtered and set aside.

After standing twenty-four hours a brownish-yellow mass was deposited, soluble in water, alcohol and ether; sparingly so in chloroform, petroleum benzin and bisulphide of carbon. Each of these menstrua was tried as a medium for obtaining crystals, but without a favorable result.

The precipitate with neutral acetate of lead was diffused in water, decomposed by hydrosulphuric acid, the sulphide of lead removed. The filtrate gave no evidence of organic matter when evaporated on platinum foil. Barium chloride gave no precipitate, but on the addition of ammonia a yellowish precipitate was thrown down, redissolved in an excess. Nitrate of silver gave a yellowish precipitate, dissolved on the addition of ammonia. No precipitate was produced with ferric chloride.

The leaves yielded 42 per cent. of soluble matter to boiling water. The amount of tannin was ascertained by volumetric analysis with solution of gelatin to be $9\frac{4}{5}$ per cent. After incinerating the air dry leaves, 6 per cent. of ashes was left as a residue, containing potassium, calcium, magnesium and iron.

A second portion of leaves was reduced to a fine powder, displaced with alcohol, the percolate evaporated to an extract, this treated with hot water, the residue separated by a filter, the solution precipitated with neutral acetate of lead, filtered and washed. Through the filtrate and washings hydrosulphuric acid was passed, the sulphide of lead was removed by a filter, and the liquid evaporated to the consistence of an extract. This was digested with ether, and the filtrate allowed to evaporate spontaneously.

After standing several days, a crystalline mass was deposited, having the appearance of white crystals diffused in a brownish-yellow coloring matter. This was proved to be very soluble in water, alcohol and ether; slightly so in chloroform, benzin and bisulphide of carbon.

A portion was treated with each of these solvents, and shaken with animal charcoal, filtered and set aside to crystallize.

When first filtered the solution was clear, but after standing a few hours re-assumed the original color (brownish-yellow).

An aqueous solution of the residue left, after treating with ether, gave the characteristic precipitate of suboxide of copper with Trommer's test for grape sugar.

A minute quantity of the crystalline product was dissolved in water, and the solution rendered alkaline by ammonia, when phosphomolybdic acid produced a blue color, proving the crystals to be arbutin (Jungmann's test).

Kawalier's process for obtaining arbutin was attended with the same results.

Since my efforts have been successful in isolating arbutin, I hope to be able to investigate more thoroughly the constituents of this plant, which seem to be so closely allied to those of *Uva ursi.*

FLUID EXTRACT OF VALERIAN CONTAINING GLYCERIN.

Editor American Journal of Pharmacy.

Dear Sir: In preparing fluid extract of valerian with stronger alcohol according to the directions given in the U. S. P., I was dissatisfied with the result, which induced me to proceed to prepare a fluid extract of valerian, using as a menstruum a mixture of alcohol, glycerin and water, with a highly satisfactory result.

I proceeded according to the directions of the U. S. P., 1870, for making that class of fluid extracts which, when finished, contain four fluid ounces of glycerin.

After obtaining eighteen fluid-ounces of percolate, the next fluid-ounce which passed through was nearly colorless, and entirely destitute of the odor and taste of the root, showing that the drug was exhausted; and having reserved the first fourteen fluid-ounces, after adding a fluid-ounce of glycerin to the remaining four fluid-ounces, evaporating to two fluid-ounces, and mixing with the reserved portion, I obtained a fluid extract much richer and heavier in appearance, possessing a more powerful and much finer odor of the rhizome, and superior in every way to the officinal alcoholic preparation.

Valerian in "moderately fine powder," is better adapted for percolation with the above menstruum than the "fine powder" which is directed in the officinal formula.

I deem this mode of preparation worthy of bringing forward to your notice from its three-fold advantages, which are—

Its cheapness, when compared to the alcoholic preparation; the less amount of evaporation required, and hence it is a more speedy and consequently less troublesome way; and lastly and pre-eminently, the superiority of the preparation when completed, both in a medicinal and pharmaceutical point of view.

Yours respectfully,

Philadelphia, April 3, 1873. MUNROE BOND.

MAGENDIE'S SOLUTION OF MORPHIA PRESERVED BY SULPHUROUS ACID.

The following letter of Professor C. Johnston, of Baltimore, has been kindly placed at our disposal. Mr. Jennings informs us that he uses from three to five drops of the officinal sulphurous acid to each fluidounce of Magendie's solution.

Baltimore, March 11, 1873.

N. H. Jennings, Esq.

My Dear Sir: I beg to recall your attention to a suggestion I made you about two months ago in reference to the use of sulphurous acid, in procuring solution of morphia for hypodermic use.

I carried in my pocket for a month a half ounce vial of a solution, two grains to the drachm, prepared by you, and at the end of that time the fluid was clear and free from any fungous formation, the absence of which might fairly be attributed to the sulphurous acid. In use I found the solution to prove as little painful as the ordinary one of Magendie, and but very little more so than the simple watery solution.

One of the advantages resulting from the employment of sulphurous acid is the permanent freedom of the solution of morphia from sediment or growth, whereby a good supply of the solution for hypodermic use may be prepared and kept ready for a long time.

The apothecary and the physician can both estimate the benefit of this possibility. I am yours very truly,

Christopher Johnston.

GLYCERIN IN FLUID EXTRACTS.

By William C. Gill.

Extracted from an Inaugural Essay.

Sixteen troyounces of valerian root, reduced to proper form, was exhausted and made into fluid extract in the usual manner; the result was a clear reddish-brown preparation, odor and taste strong of valerian, and indicating a good extract. Another sixteen troyounces was treated, after Mr. Campbell's process, with a menstruum consisting of alcohol, three parts; glycerin, one part. The fluid extract obtained was of a very dark reddish-brown color, with the characteristic odor and taste, but to all outward appearance much stronger than the preceding. Both preparations were labelled, dated and set aside. At the expiration of five weeks the fluid extract containing glycerin had changed to a muddy liquid, very unsightly and with considerable precipitate; the other, on the contrary, remained clear, with but a very slight precipitate. The glycerin preparation was then filtered; the filtered liquid again presenting a beautiful clear appearance, and seeming to have lost but little of its strength, and by many would have been pronounced the best preparation of the two. In this instance the glycerin served merely to dissolve the coloring matter (which it was unable afterwards to hold up), and thus placed the preparation in a false light, giving rise to what by a vulgar expression is called "strong" simply on account of its depth of color.

Similar experiments were made with buchu, cubebs, lupulin and ginger. In the first three the result was very nearly the same as with the valerian, namely, a strong-looking preparation, but one which in each instance precipitated after standing some time. In fact, with the cubebs and lupulin it was apparent that glycerin was not at all suitable, while the buchu yielded, instead of the rich green color noticed in the alcoholic fluid extract, a preparation having a brownish hue. The fluid extract of ginger made with the addition of glycerin was, however, superior to that simply made with alcohol, not only presenting a much nicer appearance, and proving on dilution to be equally as strong, but remaining permanent.

While performing these few experiments with the above well-known drugs, an order was received for fluid extract of poke root. Having previously used diluted alcohol as a menstruum, and with considerable success, we thought to improve on the same by addition of glycerin. A dark reddish-brown preparation was the result, coming up fully to our expectations; and, feeling perfectly satisfied, we placed what remained on hand after filling the order, on a shelf. On going to the bottle some three weeks after we found, on examination, the extract had gelatinized, and was in a semi-solid condition. Since then we have noticed a similar change in several other fluid extracts which were stable before glycerin was used in preparing them, yellow dock, golden seal, and elecampane being among the number.

In making the above statements we do not wish to condemn the use of glycerin in fluid extracts; on the contrary, we rather approve of it; but its indiscriminate use, as recommended by many, we do certainly disapprove of. In many cases the use of glycerin seems specially called for. In the fluid extract of senega it appears to be the only preservative; for, no matter what menstruum we use, if glycerin is omitted the preparation will precipitate, while if this liquid is used in the proportion of one-fourth to the usual menstruum, a fluid extract is obtained which will remain permanent, with but very slight precipitation, for an indefinite period.

The above observations are more of a practical than experimental nature, and are, perhaps, a little at variance with the ideas generally published; though adding nothing new to our knowledge of glycerin, they show that we must be guarded in its use, and carefully study the composition of the drug before using it as a menstruum.

AROMATIC ASTRINGENT SYRUPS.

By David G. Potts.

From an Inaugural Essay.

Syrupus Acidi Tannici Aromaticus—Spiced Syrup of Tannin.

℞.

Acidi Tannici, . . .	gr. lxiv.
Cinnamomi, in fine powder, .	ʒi.
Myristicæ, in mod. fine powder, .	ʒss.
Glycerinæ, . . .	fʒvi.
Sacchari, ...	℥vii.
Aquæ, ...	fʒxxii.
Alcoholis Diluti, . . .	q. s.

Mix the aromatic powders, and, having moistened the mixture with a sufficient quantity of diluted alcohol, pack it firmly in a small glass funnel arranged for percolation, and gradually pour diluted alcohol upon it until one fluid-ounce of tincture has passed. Triturate the tannic acid first with the glycerin, and then with the water gradually added; transfer the solution to a glass flask, and boil for ten minutes, filter, passing water through the filter until the filtrate measures twenty-eight fluid-drachms. To the filtered solution add the sugar, and, having dissolved it by a gentle heat, strain while hot. Lastly, add the reserved aromatic tincture to the solution when it is cold, and mix thoroughly.

One grain to the fluid-drachm is the tannin strength of this syrup. In comparing it with others, to be subsequently mentioned, it would seem to be of less therapeutical value. My medical friends, whom I have consulted in this dilemma, have approved of it as it is, for the reason that for children a powerful astringent is not needed, but rather one just strong enough to be absorbed without corrugating or condensing the mucous membrane of the stomach; for in looseness of the bowels it is not the local action on the stomach, but the remote action on the bowels which is expected from an astringent.

It is stated in the U. S. Dispensatory (p. 958 and 978) that sometimes when an aqueous solution of tannic acid is exposed to the atmosphere that a change takes place with the partial conversion of tannic into gallic acid, and, according to the opinion of M. Edmond Robiquet, it is due to the presence of pectase in the tannin, which, with a proper temperature and in the presence of water, acts as a ferment. To obviate the change in this preparation, the tannic acid solution is directed to be boiled as recommended by the above named chemist, who asserts that if a tannic acid solution be boiled for some time, that the pectase loses its properties of acting as a ferment, and the solution may be kept indefinitely without change. According to Prof. Procter (Am. Jour. of Pharm., Jan., 1865, p. 53 and 54), the odor of commercial tannic acid is chiefly due to the odorous principle of nut-galls, and this is dissipated in a great measure in this preparation by the boiling, no odor being perceptible save that of the aromatics.

Syrupus Gallæ Aromaticus.

℞.

Gallæ optimæ, in fine powder,	℥ss.
Cinnamomi, in fine powder,	
Myristicæ, in mod. fine powder,	*aa* ʒii.
Glycerinæ,	ʒvi.
Syrupi,	℥vi.
Spiritus Vini Gallici,	q. s.

Mix the powders, and, having moistened the mixture with a sufficient quantity of brandy, pack it firmly in a small conical glass percolator, and gradually pour brandy upon it until it commences to drop; then insert a cork tightly in the lower orifice of the percolator and let it stand twenty-four hours. Then withdraw the cork and continue the percolation with brandy until six fluid-ounces of tincture are obtained Mix this with the glycerin and evaporate by a water-bath, at a temperature not exceeding 125° F., to three fluid-ounces, filter, and thoroughly mix the syrup.

The formula given for preparing this syrup in Parrish's Pharmacy is, in my opinion, unsatisfactory, and the above might be substituted for it, being of equal strength and more pharmaceutical in appearance and manipulation. After preparing this syrup by several different methods, I find that prepared according to the above formula is the most satisfactory in appearance, palatableness and qualities of keeping; it corresponds in strength to the one heretofore in use, differing from it in its mode of preparation, containing glycerin, also more sugar, and having none of it caramelized, the advantage of which is doubtful. The quantity of aromatics used in this formula seem to produce so much oily matter as to render the syrup slightly opaque, and would be improved in appearance by using less aromatics, but wishing to keep the proportions of the original formula is the reason I did not use less in preparing this syrup, although I think that if its preparation be carefully managed, particularly in adding the glycerin before evaporating, and not employing too high a temperature in evaporating, it will always result in a satisfactory preparation. The advantage that is gained in adding glycerin before evaporating, is that it holds more of the soluble matter in solution, which separates on evaporating the alcoholic liquid; the glycerin also improves the palatableness of the syrup considerably.

Syrupus Kino Aromaticus.

℞.

Kino, in fine powder,	ʒvi.
Cinnamomi, in fine powder,	
Caryophylli, in fine powder,	
Myristicæ, in mod. fine powder,	*aa* ʒi.
Sacchari,	℥vii.
Glycerinæ,	fʒvi.
Aquæ,	fʒxxvi.
Alcoholis Diluti,	q. s.

Mix the aromatic powders, and, having moistened the mixture with a sufficient quantity of diluted alcohol, pack it firmly in a small glass funnel arranged for percolation, and gradually pour diluted alcohol upon it until one fluid-ounce of tincture is obtained. Triturate the kino first with the glycerin, and then with the water gradually added, and filter. To the filtered solution add the sugar, and having dissolved it by a gentle heat, strain while hot. Lastly, add the reserved aromatic tincture to the solution when it is cold, and mix them thoroughly.

The value of kino as a reliable astringent has been long and well known; it is frequently prescribed during the summer months, when astringents are most in demand, and to supply this demand the above syrup forms an aromatic preparation of it, representing about five grains of kino to each fluid-drachm. The alcoholic tincture is uncertain in its stability, unless sugar be added at the time of preparation. The syrup, however, is almost of equal strength, is stable, palatable and convenient, especially when a preparation free from alcohol is desired.

Syrupus Catechu.

R.

Catechu (select), in fine powder,	ʒvi.
Sacchari,	℥vii.
Glycerinæ,	fʒvi.
Aquæ Cinnamomi,	f℥iv.

Triturate the catechu, first with the glycerin and then with the water gradually added, and filter. To the filtered solution add the sugar, and having dissolved it by a gentle heat, strain while hot.

This syrup is of the same strength as the alcoholic tincture of catechu, U. S. Pharmacopœia, but differs from it in containing no alcohol or peculiar extractive, which latter is the cause of the mawkish taste in the tincture.

Syrupus Geranii Maculati Aromaticus.

R

Geranii maculati, in fine powder,	℥iii.
Cinnamomi, in fine powder,	ʒi.
Caryophylli, in fine powder,	
Myristicæ, in mod. fine powder,	*aa* ʒss.
Sacchari,	℥viii.
Alcoholis Diluti,	q. s.

Mix the aromatic powders, and having moistened the mixture with a sufficient quantity of diluted alcohol, pack it firmly in a small glass funnel arranged for percolation, and gradually pour diluted alcohol upon it until half of a fluid-ounce of tincture is obtained. Moisten the geranium with a sufficient quantity of diluted alcohol, pack it firmly in a conical glass percolator, and gradually pour diluted alcohol upon it, until one pint of tincture has passed. Transfer the liquid to a porcelain vessel, boil for a few minutes, evaporate by a water bath to four fluid-ounces, and filter. To the filtered liquid add the sugar, and having dissolved it by a gentle heat, strain while hot. Lastly, add the reserved aromatic tincture to the solution when it is cold, and mix them thoroughly.

This is an agreeable and efficient astringent, and is spoken highly of by the late Dr. Eberle in his work on the practice of medicine. A fluid-drachm represents twenty grains of the powdered drug; this would seem to be a large dose, and no doubt would be, if tannin were the only active principle, but Geranium maculatum is peculiar in its composition, containing both tannic and gallic acids, and therefore acts both as a local and remote astringent.

Syrupus Staticis Aromaticus.

R.

Staticis, in fine powder,	℥iii.
Cinnamomi, in fine powder,	ʒi.
Caryophylli, in fine powder,	
Myristicæ, in mod. fine powder,	*aa* ʒss.
Sacchari,	℥viii.
Alcoholis Diluti,	q. s.

The details of the process are identical with those for the preceding syrup of geranium.

The syrup prepared according to the above formula furnishes a preparation of statice that is powerfully astringent, with a saline taste, which latter is due to the presence of various salts, which betray its habitat. Notwithstanding the taste it is eligible in appearance, keeps perfectly well, and is convenient for preparing gargles and mouths-washes, for which this drug is chiefly used.

COURT PLASTER.

By Arthur S. French.

From an Inaugural Essay.

The author gives the following practical details for making court plaster, handsomely-made specimens of which accompany his essay.

The difficulty seems to be in most cases that of cracking and breaking, which fault can be remedied by the addition of glycerin. The following I will offer with a view of producing a superior quality of court plaster, and to prevent the breaking.

Russia Isinglass,	℥j.
Water,	Oj.
Alcohol,	fl℥j.
Glycerin,	flʒss.

Soak the isinglass in the water for one day, then dissolve it by the aid of a gentle heat, after which strain it and add the alcohol and glycerin. The mixture being now ready for use, is spread on a fine quality of silk stretched on a frame, each successive coat being allowed to dry before applying the next. Heat should not be used in drying the plaster, as it is apt to drive the glycerin out, and leave the plaster streaked.

By another formula, court plaster is made in the following manner.

Russia Isinglass, .	℥iss.
Resin, . . .	ʒxiv.
Alcohol, . .	
Water, . . .	aa q. s.
Glycerin, . .	ʒss.

Beat the resin in a mortar until perfectly powdered, then dissolve it in alcohol q. s., and mix with the isinglass solution; strain and add the glycerin.

Court plaster made in this way is very adhesive but not as handsome as when made by the previous formula.

In another formula, gelatin is used instead of isinglass, and makes a very handsome plaster.

Gelatin, . . .	℥iss.
Water, . .	Oj.
Glycerin, . . .	fl℥j.

Soak the gelatin in the water for one day, then dissolve it by the aid of a gentle heat, and after it is dissolved add the glycerin.

This mixture, if spread on coarse and heavy silk, makes a white and opaque plaster; while, if spread on thin and finer silk, the plaster will be nearly transparent and of a yellowish tint.

ON THE TRAINING OF APPRENTICES.

By Geo. Ude.

The proper plan of educating young men in the profession of pharmacy is a question which is frequently discussed at the present time, and I think it very proper that this should be thoroughly done.

The late Professor Parrish has written a very able answer to a query about the preliminary educational requirements of apprentices who wish to enter stores of pharmacy. It may be readily seen from this essay that he has been attached devotedly to our profession, and that the system of teaching in schools might be improved considerably.

I should advocate the teaching of the Latin language in our high schools, as it would not only be beneficial for youths entering our profession, but for all, in any kind of business, as Latin phrases are frequently used even in our daily papers. As to the plan of teaching apprentices, there is a very large space left vacant for improvement.

Having at this very time a new apprentice, and considering the question now pending, I would here briefly state my plan, and if any of the profession sees room for improvement, it will be for the benefit of the profession at large to publish it.

I have, so far, instructed two. When the youth enters his apprenticeship, I hand him a list of the names of all the drugs and preparations in the shop, written on cap paper in the Latin, English and German languages, and let him commence with the names of those in materia medica, not in rotation of the Pharmacopœia, but in rotation of drawers and bottles as they are on the shelves. For instance, thus:

Cetraria,	Iceland Moss,	Islaendisches Moss.
Cera alba,	White Wax,	Weisses Wachs.
Cera flava, &c.,	Yellow Wax, &c.	Gelbes Wachs, &c.

This plan may appear one-sided to some, but it is just this in which I have had occasion to see how little the labor of Wood and Bache is appreciated when they give us not only the English names besides the Latin, but also the German, French, and in many instances those of different other languages. Considering that there are quite a number of Germans in this city (St. Louis, Mo.), I let my apprentices study the three above mentioned. I have been on visits to some of my friends, also apothecaries, and was informed that some German party would come in and ask for Flaxsaamen Thee, and such like articles, and, not knowing what the party meant, the sale had been lost.

Certainly it is a little trouble to write say 600 or 700 names in three languages, but the reward will be ample. Five or six sheets of foolscap paper and a couple of days' leisure hours will do it.

I let the apprentice learn during the leisure hours in the day-time, and hear his lesson, say, for instance, 100 names, in the evening; and when he is cleaning the shelves and bottles, Saturdays, I tell him to take a look at the ingredients, and thereby let his work, be it as it is, a dusty job, be an instruction to him.

After he has learned the names I let him peruse the U. S. Dispensatory, and a small treatise on chemistry, and another on botany.

These three, together with the work he has to perform, and with personal instruction, make him a good student for the College of Pharmacy and a reliable pharmacist thereafter.

IMPROVED FORMULA FOR CAMPHOR WATER.

By Wm. B. Addington, Norfolk, Va.

℞.	Camphoræ,	ʒiv,
	Magnes. Carb.,	ʒii,
	Aquæ Destillat.,	Oiv,
	Alcohol.,	q. s.

Take just enough alcohol to dissolve the camphor and bring it to a liquid state; while liquid add the magnesia and triturate (during this time the alcohol will evaporate). Then mix the water, as usual, and filter. By making a perfect solution of the camphor, the particles are thoroughly divided, whereas by the U. S. P. process only enough alcohol is added to break up the adhesion of its particles and reduce it to powder, and all must have noticed the numerous small grains of camphor left on the filter by the present process. Camphor water is made by the process I suggest in one-half the time; magnesia is saved by it, and all the camphor directed is taken up in the solution. By the present process it is not. There is no deposit formed on the bottom or sides of the jar by standing. I have tried this formula for the last eight months, and am vey much pleased with it.

ON THE MEDICINAL USE OF GREEN SOAP.

By the Editor.

A short time ago, a correspondent asked us for a formula for Tinctura Saponis viridis composita, which he informed us was used in the eastern cities. At first we were unsuccessful in our endeavors to comply with the wish of our correspondent, until Messrs. Wm. McIntyre and Gustavus Krause furnished us with the following formulas, which we publish below for the benefit of our readers.

Commercial soft or green soap is usually made now, wholly or in part, from common whale and other fish oil. Hemp-seed oil, or rather a mixture of it with various other liquid fats, has formerly been used, but long since substituted by almost any refuse oil which, on account of smell, rancidity or color, is unfit for other uses. These oils are saponified with caustic potash, and the desired green color is imparted to it by blue, green or yellow pigments, as may be required. Frequently, however, soft soap is met with of a blackish, or rather such a dirty color that it is difficult to distinguish a particular tint. The soft soap of the London Pharmacopœia of 1851, and of the Edinburg Pharmacopæia of 1841, was directed to be made from olive oil and potash.

Green soap is mainly used in medicine for the cure of itch, and in various other skin diseases; but, on account of its caustic nature, is not often applied.

The following formulas* have been furnished to us:

Lotio Saponis viridis (*Prof. Hebra*). Green soap ℥i, boiling water Oj, oil of lavender ʒss. Mix.

Spiritus saponatus kalinus (*Prof. Hebra*). Green soap 2 parts, 95 per cent. alcohol, 1 part. Scent ad libitum.

Tinct. Saponis vir. cum pice (*Prof. Hebra*). Green soap, tar, alcohol, equal weights of each.

Tinct. Saponis vir. comp. (*Tilbury Fox*). Green soap, oil of cade,† alcohol, aa ℥i, oil of lavender fʒiss. Mix.

Some older preparations of green soap we find quoted in Redwood's Supplement to the Pharmacopœia, London, 1857:

Freeman's Bathing Spirits. Soft soap 6 lbs., camphor 8 oz., alcohol and water of each 3 galls. The solution to be colored with 4 oz. Daffy's Elixir (Tinct. Sennæ et Jalapæ).

Jackson's Bathing Spirits. Soft soap 2 lbs., camphor 12 oz., oils of rosemary and thyme of each 1½ oz., alcohol 2 galls.

EXTRACTUM IPECACUANHÆ FLUIDUM.‡

By B. F. McIntyre.

The Pharmacopœia of 1860 and the revision recently published give formulas for the preparation of Fluid Extract of Ipecac. The alteration of the old formula given in the new edition, suggested the following experiments to determine whether the change is an improvement.

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* Several of these formulas may be found in Napheys' Modern Therapeutics.

† The empyreumatic oil obtained from the wood of *Juniperus oxycedrus*.

‡ Read at the second annual meeting and published in the Annual Report of the Alumni Association of the College of Pharmacy of the City of New York.

The results obtained seemed of sufficient importance to bring before the annual meeting of the Alumni.

The Pharmacopœia of 1860 directs that powdered ipecac be exhausted with stronger alcohol, the alcohol partially recovered by distillation, the concentrated extract mixed with water and acetic acid, the filtrate evaporated to a definite measure, a portion of alcohol added to preserve the preparation, the finished fluid extract measuring 16 f. oz. for every 16 Troy oz. powder manipulated.

The details of this process will be considered further on.

The Pharmacopœia of 1870 directs that two menstrua be used to exhaust the powder, the first a mixture, (24 f. oz. stronger alcohol, 12 f. oz. water), followed with diluted alcohol until the resultant percolate measures 32 f. oz.; one-half pint glycerin is added to this 32 f. oz. of percolate, and the whole evaporated at a temperature not exceeding 140° F.

The first menstruum given in the formula was used to exhaust the ipecac. Each successive pint of percolate from the drug was accurately weighed at 62° F., the several differences found, and the proportional distribution of extract through the percolate, calculated in the manner indicated by Dr. Squibb before the American Pharmaceutical Association in 1870.

One pint of the menstruum weighed 6,590 grs., the powder required 10 f. oz. to moisten it thoroughly, and after four days maceration, 26 f. oz., before the percolation commenced.

A tabular statement of the rate of exhaustion is given:

1	Pint	weighed	7,108	grains.	Difference,	518	grains.	Extract,	1,299	grains.
2	"	"	6,805	"	"	215	"	"	560	"
3	"	"	6,670	"	"	80	"	"	200	"
4	"	"	6,635	"	"	45	"	"	112	"
5	"	"	6,630	"	"	40	"	"	100	"
6	"	"	6,622	"	"	32	"	"	69	"
						930	grains.		2,340	grains.

Quantity powder percolated	7,680 grains.
Dried residue, after exhaustion	5,327 "
Loss by percolation, solid extract . . .	2,353 grains.

The Pharmacopœia percolates 2 pints. Percentage of total extract, 80 per cent. Extract in pint when of 80 per cent., 1,859 grains.

The weight of 8 f. oz. glycerin, specific gravity 1.25, was found to be 4,574 grains; this, mixed with the first 32 f. oz. percolate, and evaporated to 16 f. oz., weighed 8,310 grains finished fluid extract.

A practical difficulty presents itself in the manufacture of this preparation. Economy of alcohol in the manipulation of fluid extracts is an important consideration, and this is paramount whenever it can be practiced without injury to the preparation.

The Pharmacopœia directs that the first 32 f. oz. percolate be evaporated at a temperature not exceeding 140° F., therefore the recovery of alcohol from the tincture is impossible, the temperature given is too low for distillation; if it is heated to the boiling point, the finished preparation will be gelatinized and unsatisfactory.

If the evaporation is conducted at 140° after filtering, the finished fluid extract has a syrupy consistence, dark rich color, odor strong and characteristic of the drug.

The new formula provides no method for the separation of the inert resin, which is the troublesome object that required attention. The writer made several experiments, varying the process, but adhering to the glycerin and low temperature, and found in every instance that a syrup made from the fluid extract precipitated the resin, giving the syrup a dirty appearance, which is a cause for complaint.

The loss of alcohol is great, first in the residue or exhausted powder, then from the tincture, finally glycerin is added, and the preparation has gained nothing but density and color. Emetia, the active principle in ipecac, is perfectly soluble in alcohol and sparingly soluble in water, U. S. Disp.—page 495.

This fact suggests stronger alcohol as the proper menstruum, the rate of exhaustion is given below, 16 f. oz: stronger alcohol weighing about 5,907 grains.

1 Pint weighed	6,333 grains.	Difference,	426 grains,
2 " "	6,110 "	"	203 "
3 " "	6,065 "	"	158 "
4 " "	6,055 "	"	148 "
5 " "	6,055 "	"	148 "
6 " "	6.060 "	"	153 "
7 " "	6,038 "	"	131 "
			1,367 grains.

Quantity powder percolated . .	7,680 grains.
Dried residue, after exhaustion .	6,320 "
Loss by percolation, solid extract	1,360 grains.

The dried residue, after powdering, was wet up with water (weight of 16 f. oz. water about 7,300 grains) and exhausted.

1 Pint weighed	7,630 grains.	Difference, 330 grains.	Extract, 734 grains.
2 " "	7,415 "	" 115 "	" 255 "
3 " "	7,335 "	" 35 "	" 77 "
		480 grains.	1,066 grains.

Quantity residue percolated . . .	6,320 grains.
Dried residue, after exhaustion	5,252 "
Loss by percolation, solid extract . . .	1,068 grains.

The three pints aqueous percolate when evaporated to dryness, gave of extract 1,150 grains. This extract has a perceptible odor, and in 10 grain doses produced nausea and slight emetic effect; its taste is peculiar and disagreeable. Ten grains of the extract would be equivalent to seventy grains of the powder, if the former had special medicinal value. The separation of resin from fluid ipecac is difficult; the Pharmacopœia process of 1860 will not effect its removal. The formula directs 10 f. oz. water with 1 f. oz. acetic acid to be mixed with the concentrated alcoholic extract—the writer has found it necessary to use from five to ten pints of water with 1 f. oz. acetic acid for every Pharmacopœia portion—frequently this dilution is repeated before the preparation is free from resin.

One pint of fluid ipecac, made by the old process, weighs about 7,980 grains at 65°F. Fluid extract of ipecac prepared by the process given in the 1860 Pharmacopœia, is rarely found free from resin; the following formula for syrup of ipecac has proved reliable, producing a clear elegant syrup:

Fluid Ipecac	f. oz. j.
Water	f. oz. xvij.
Gran. Sugar,	Troy oz. xij.

Dilute the fluid extract with 16 f. oz. water, set aside for 12 hours, filter, evaporate to 6 f. oz., filter, add through filter 1 f. oz. water, then dissolve sugar with gentle heat, the finished syrup to measure 16 f. oz.

The conclusion of these experiments indicate that the old formula is reliable and economical, though difficult in manipulation. The physician rarely has cause to criticise the effectiveness of fluid ipecac when prepared from good root, and by the old process.

The Pharmacist wants a fluid extract of ipecac that will not precipitate when in the form of the officinal syrup.

The formula in the Pharmacopœia of 1870 does not supply this want.

ON THE COMPARATIVE THERAPEUTICAL VALUE OF SALTS OF PROTOXIDE AND SESQUIOXIDE OF IRON, AND ON A NEW SERIES OF TASTELESS IRON COMBINATIONS.*

By J. L. A. Creuse, of Brooklyn, N. Y.

It is not my intention here to treat on the medical properties and uses of ferruginous compounds as a class; this has been done before me by more competent persons. My purpose is only to discuss the relative physiological and chemical properties of the various iron combinations and describe a new series of tasteless ferruginous compounds.

Iron has been used in medicine, it may be said, from time immemorial. Metallic iron, green copperas, iron rust, carbonate of iron, bole armenia, etc., are mentioned in the oldest authors on medicine and pharmacy. It seems also that in former times little importance was attached to the peculiar form in which iron was administered. Some fifty or sixty years ago, however, a decided preference began to be shown for metallic iron, finely comminuted, and for the proto-salts of iron. It was thought, then, that the easy solubility of those preparations in the stomach was a great advantage, and that theory gave rise to a number of officinal remedies like iron by hydrogen, Vallet's mass, proto-iodide of iron, etc., etc., well known to all Pharmacists.

But of late years, especially since the discovery of the citro-ammonical pyrophosphate of iron, by Robiquet, my old master, salts of sesquioxide of iron have been steadily growing into favor. It has been argued, with reason, that, since iron in human economy is invariably found in the shape of sesqui-salts, such compounds should be preferred to all others whenever iron is indicated. I may add, also, that it is always in the form of sesqui-salts that iron exists in all vegetable and animal substances which compose human food, and that metallic iron or its proto-salts cannot be mixed with the simplest aliments without completely decomposing them. Protoxide of iron is as unyielding as it is unstable: when you have combined it with strong acids you can go no further with its salts: you can do nothing with them, not even an alum. Sesquioxide of iron, on the contrary, is a perfect Proteus; sometimes a base, sometimes an acid, it is always ready to enter into some combination or other on the slightest provocation.

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* Read at the second annual meeting and published in the annual report of the Alumni Association of the Colllege of Pharmacy of the city of New York.

In a paper published some time ago I demonstrated that nearly all the insoluble sesqui-salts of iron could be combined with the alkaline citrates, forming soluble and tasteless compounds, to which I gave the name of quadruple citrates.

Since then, further experiments have shown me that other vegetable salts, besides the citrates, possessed also the same property, and that not only the insoluble but also the soluble sesqui-salts of iron could form similar combinations.

In other words, I may lay down this rule: *All the salts of sesquioxide of iron, without exception, soluble or insoluble, form combinations with all the alkaline citrates, tartrates and oxalates.* Such combinations are invariably green, whatever may be the color of the iron salt; they are all soluble in water, nearly insoluble in alcohol; they are all free from ferruginous taste, all perfectly stable, and miscible with preparations of Peruvian bark without decomposition. In all of them the presence of iron is so disguised as not to be detected by chemical reagents, unless after the addition of strong acids or sulphuretted hydrogen, both of which destroy the combination.

In other papers I have described the soluble compounds obtained in combining the phosphate, hypophosphate, valerianate and arseniate of iron with the alkaline citrates. In this I will merely describe the tasteless combinations of the alkaline citrates with iodide, chloride, sulphate and nitrate of iron.

TASTELESS IODIDE OF IRON.

This is, no doubt, the most important of the whole series, both therapeutically and chemically; therapeutically, because iodide of iron is admitted to be the best of all iron combinations; chemically, because all the reactions happening during its preparation are so remarkable and so easy to follow with accuracy as to be likely to give a key to the real composition of the rest of the series—a result which can hardly be obtained with any of the other similar combinations.

The salt is obtained in the following manner: 126,3 grs. (1 eq.) of iodine are first combined with metallic iron, in the usual way to obtain the proto-iodide of iron; this is filtered, and 63 grs. (½ eq.) of iodine are dissolved into it. Then, a solution of 201 grs. (1 eq.) of citric acid saturated with a fixed alkali, such as potassa, for instance, is added by small portions to the sesqui-iodide of iron. The ferruginous solution which is at first of a ruby red color and has a strong smell of iodine, becomes lighter by degrees, till as the last drop of citrate is added, it takes a bright apple green color; at the same time, all smell of iodine, all taste of iron have disappeared; the solution strikes no color on starch paper, and gives no precipitate with either tannin or ferrocyanide of potassium. It may be then evaporated at a low heat, with gentle stirring to dryness, when it gives a green mass formed of very small acicular crystals, looking somewhat like cauliflowers. It is tasteless, perfectly stable, unless exposed to direct sunlight, and may be exhibited, in the shape of syrup, elixir, solution, tincture, pills, etc. The dose of it need not be more than one-half of that of the proto-iodide of iron, as it is absorbed much more readily.

Chemically, this iodide of iron seems to be a combination in which sesqui-iodide of iron plays the part of an acid and the alkaline citrate that of a base; but the subject requires further investigations before it can be decided with complete certitude.

The other alkaline citrates may be used instead of citrate of potassa; similar combinations may also be obtained with the alkaline tartrates, oxalates, and malates, but none are so tasteless, and especially none so *stable* as the one just mentioned.

I must add a few words on this subject which is a most important one, for the same remarks may be applied to all the other analogous iron combinations, pyrophosphate included. On reading the above process, some may think that, after all, the product is only a mixture of citrate of iron, iodide and iodate of potassium. But, aside of the fact that the different ingredients are not in proportion to form such combinations, chemical tests show that such is not the case. Citrate of iron, for instance, is of a ruby red color and turns immediately ink black on the addition of tannin, while tasteless iodide of iron is bright green and is not colored black by tannin, but only turned to a light purple hue, after some time. Iodide of potassium dissolves iodine freely: the new salt dissolves it but sparingly, unless when in a concentrated solution. Iodate of potassium is colored red by solutions of morphia: no coloration is produced by them in solutions of the new salt. This last reaction is important, as iodate of potassium is deemed poisonous by some physicians.

Tasteless Chloride of Iron.

Sesqui-chloride of iron, the salt which enters in the preparation generally known as tincture of muriate of iron, has the property of forming combinations precisely similar to those of the sesqui-iodide. If an alkaline citrate be added to a solution of sesqui-chloride of iron, in the proportion of two equivalents of the former to each three equivalents of chlorine, a new salt will be obtained of a green color, quite tasteless, and miscible with vegetable preparations such as infusions of bark, quassia, etc., without change or discoloration.

This tasteless muriate of iron may be dissolved in diluted alcohol in the proportion required by the Pharmacopœia of the United States; it forms, then, a tincture of muriate of iron, which is as superior to the old one as a civilized man is above a barbarian. Its effects, I know, from experience, are fully equal to those of the officinal tincture.

I cannot give the exact weight of citric acid required for a given quantity of the officinal tincture of muriate of iron, on account of the great variation in the strength and acidity of that preparation, but, on an average, 120 to 140 grains of citric acid saturated with either soda or ammonia will answer for one fluid-ounce of the tincture. This is to be added to the iron solution before the alcohol, and the alcoholic strength of the tincture, when finished, must not be more than 30 or 40 p. c. instead of 70 p. c., as usual.

The sesqui-sulphate and the sesqui-nitrate of iron form also combinations precisely alike to those described above, but present no special interest to be entitled to more than a simple mention.

All these combinations, however, lack the property of coagulating the blood, and for that reason cannot be used as styptics in cases of hemorrhagia, etc. The old officinal preparations will have to be retained for external use, the only thing they are fit for in a civilized community.

Note.—The tasteless Iodide of Iron has been patented, but with no intention of interfering with any Druggist who wishes to make it himself for his own dispensing.

ON THE PREPARATION OF PURE PROTIODIDE OF MERCURY.*

By Jules Lefort.

Protiodide of mercury as at present prepared, is often a mixture of protiodide and metallic mercury with more or less of biniodide, and though it is not difficult to remove the last named compound, the contaminating metal cannot be separated. To prepare the protiodide by double decomposition, it was necessary to find a mercurous salt, neutral in its reaction and readily soluble in water. The author has found these conditions in the hitherto unknown double salt of pyrophosphate of sodium and mercurous acetate, which must be placed in the same category with the double pyrophosphates investigated by Persoz† and Pahl‡.

The new double salt crystallizes in handsome needles, which alter on prolonged contact with the air, but dissolve readily in water without decomposition. The solution yields with potassium iodide a greenish yellow precipitate of mercurous iodide, having exactly the composition HgI; in the reaction, the pyrophosphate of sodium plays no other part except that of a solvent for the mercurous acetate.

To prepare the double salt 60 grams of pure crystallized pyrophosphate of sodium are dissolved, with the aid of heat, in 300 grams of distilled water; when cool, 30 grams of mercurous acetate are added to the solution, and the mixture stirred from time to time. If the pyrophosphate is chemically pure, the mercurous salt will completely dissolve without the least decomposition. Usually, however, a partial decomposition has occurred during the conversion of the ordinary phosphate into the pyrophosphate of sodium by the prolonged heat, and a small quantity of the mercurous acetate is then decomposed into mercuric salt and metallic mercury, which, however, has no other effect upon the mercurous iodide except to somewhat lessen the yield.

To the filtered solution an equal volume of distilled water is added, and afterwards in small quantities with continued agitation, a solution of 30 grams iodide of potassium in one litre of distilled water. The precipitate is at first brownish green, afterwards green, resembling the green oxide of chromium; but after settling, it has a greenish yellow color, so that the salt is probably polychromatic.

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* Abstract of a paper read before the Pharmaceutical Society of Paris, and published in the Journal de Pharmacie et de Chimie, 1873, April, p. 267—270.

† Journal de Pharmacie et de Chimie, 3 ser. xii, p. 218.

‡ Bulletin de la Société Chimique, xix, 1873, p. 115.

Neither iodine or mercury is set free during any stage of the precipitation, as in the case of mercurous nitrate and iodide of potassium. If the solution of pyrophosphate of sodium and mercurous acetate contains some mercuric acetate, a pale red coloration of the liquid will be produced towards the close of the reaction by the separation of biniodide of mercury, which is easily removed by a slight excess of potassium iodide, the dilute solution of this salt not decomposing the protiodide of mercury while it readily dissolves the biniodide. It is well not to omit the precaution of testing the precipitate for this contamination, by washing a portion with hot alcohol. The precipitate is washed with cold water by decantation, collected upon a filter and dried at a moderate temperature, protected from the light.

It is true that this process is more costly than those described in standard works, but the quality of the product is such that these objections amount to nothing.

SELECTED FORMULAS FROM PHARMACOPŒA GERMANICA.

By the Editor.

(Continued from page 163 of last number.)

Mixtura gummosa. Finely powdered gum arabic and sugar, each 15 p.; distilled water 170 parts.

Mixtura oleoso-balsamica, s. Balsamum vitæ Hoffmanni. 3 parts of balsam of Peru, 1 part of each of the volatile oils of lavender, cloves, Chinese cinnamon, thyme, lemon, mace and orange-flowers, 240 parts of 90 per cent. alcohol.

Mixtura sulfurica acida, s. Elixir acidum Halleri. Add gradually sulphuric acid, 1 part, to 90 per cent. alcohol, 3 parts.

Mixtura (Aqua) vulneraria acida s. Thedenii. Vinegar, 6 p.; 68 per cent. alcohol, 3 p.; dilute sulphuric acid (sp. gr. 1·113—1·117), 1 p.; purified honey, 2 parts. Mix and filter.

Mucilago Cydoniæ. Quince seed, 1 p.; rose water, 50 p. Macerate for half an hour, with frequent agitation, and strain.

Mucilago (Decoctum) Salep. Put 1 part of powdered salep into a flask containing 10 parts of cold water, and mix well by agitation; then add 90 parts of boiling water, and shake the mixture continuously until cool.

Oxymel Colchici. Mix vinegar of colchicum, 1 part, with clarified honey, 2 parts. Evaporate to 2 parts, and strain.

Oxymel Scillæ is prepared in the same manner from vinegar of squill.

Oxymel simplex. Acetic acid, No. 8, 1 p.; clarified honey, 40 p. Mix.

Pasta gummosa s. Althææ is the well-known so-called marsh-mallow paste, and

Pasta Liquiritiæ s. Glycyrrhizæ is sold here under the name of jujube paste.

Pilulæ aloeticæ ferratæ s. Pil. Italicæ nigræ. Equal parts of exsiccated sulphate of iron and powdered aloes are mixed, and with alcohol formed into pills, each weighing 10 centigrams.

Pilulæ jalapæ. Jalap soap, 3 p.; powdered jalap, 1 part. The pills to weigh 10 centigrams.

Sapo jalapinus, Jalap soap, is made by dissolving 4 parts each of resin of jalap and of medicated soap (made of olive oil and soda) in 8 parts of 68 per cent. alcohol, and evaporating to 9 parts.

Pilulæ odontalgicæ, tooth-ache pills. 5 grams each of powdered opium, belladonna root and pellitory, 7 grams yellow wax, 2 grams expressed oil of almond and 15 drops each of cil of cajeput and cloves, are mixed in a warm mortar until a pill mass is obtained, which is divided into pills, each weighing 5 centigrams.

Plumbum tannicum pultiforme s. Cataplasma ad decubitum. 8 p. of cut oak bark are boiled with sufficient water, for half an hour, to obtain a decoction weighing, after straining, 40 parts; this is mixed with 4 parts of solution of subacetate of lead, the precipitate collected upon a filter, and when weighing about twelve parts transferred into a suitable vessel and mixed with one part 90 per cent. alcohol.

Potio Riveri, an effervescing neutral mixture, prepared of 4 parts citric acid, 190 p. distilled water, and 9 p. pure carbonate of sodium.

Pulvis aërophorus. Bicarbonate of sodium, 10 p.; tartaric acid, 9 parts; sugar, 19 parts. The articles are separately reduced to a very fine powder, thoroughly dried, and then mixed.

Pulvis aërophorus Anglicus = Soda powders.

Pulvis aërophorus laxans = Seidlitz powders.

Pulvis arsenicalis Cosmi. Cinnabar, 120 parts; animal charcoal, 8 p.; dragon's blood, 12 p.; arsenious acid 40 parts. Mix thoroughly to a fine powder.

Pulvis gummosus. Powdered gum arabic, 3 parts; liquorice root, 2 p.; sugar, 1 part. Mix.

Pulvis ad Limonadam s. P. refrigerans Ph. Bad. Powdered sugar, 120 grams; citric acid, 10 grams; oil of lemon, 1 drop. Mix.

Pulvis Magnesiæ cum Rheo, s. P. infantum s. antacidus. Carbonate of magnesium, 60 p.: fennel oil sugar, 40 p.;* rhubarb, 15 parts. Mix thoroughly.

Pulvis temperans s. refrigerans Ph. Germ. Nitrate of potassium, 1 p.; cream of tartar, 3 p.; sugar, 6 parts. Mix.

(To be continued.)

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Carbazotate (Picrate) of Ammonium is again recommended in intermittent fevers by Dr. Dujardin-Beaumetz, who from his observations arrives at the following conclusions:

1. Carbazotate of ammonium is very efficacious in intermittent fevers.

2. The disease may be suppressed by the use of from 2 to 4 centigrams ($\frac{1}{3}$ to $\frac{7}{11}$ grains) of carbazotate in 24 hours.

3. In such a dose the medicine produces no ill effects, and appears even to be better borne than sulphate of quinia.

4. The preparation of carbazotate of ammonium is not connected with any danger.†

5. The physiological action of carbazotate of ammonium is very analogous to that of sulphate of quinia.

6. It deserves to be generally used, and appears to replace quinia in a great number of cases.—*Répertoire de Pharm.*, 1873, 12.

Syrup of lacto-phosphate of calcium is prepared by Ch. Ménière by dissolving 1 gram white lactate of sodium and 4 grams soluble acid phosphate of calcium in a small quantity of water, and adding the solution to 395 grams of simple syrup. The preparation is flavored with some essence of lemon.—*Ibid.*, 37.

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* The oil sugars, elæosacchara, contain 1 drop of volatile oil to 2 grams of powdered sugar.

† The potassium and many other salts of picric acid are very explosive; the ammonium salt, when rapidly heated, burns without explosion.—Editor Amer. Journ. Pharmacy.

Decomposition of Hydrate of Chloral. Hydrate of chloral containing the elements for formic acid and chloroform ($C_4HCl_3O_2,H_2O_2=C_2HCl_3+C_2H_2O_4$) is split into these two bodies by the action of alkalies. H. Byasson has observed a similar decomposition under the combined influence of glycerin and heat. On heating a solution of 1 part of chloral hydrate in 5 parts of syrupy glycerin, a reaction commences at about 110° C. (230° F.), and continues regularly to about 230° C. (446° F.), when the glycerin is much colored and thick. The decomposition products have distilled over, and the liquid separates into two layers, the lower of which consists of chloroform, while the upper layer contains formic acid, hydrochloric acid, formiate of allyl and chloral hydrate dissolved in water. As a mean of three operations, 100 chloral hydrate yielded 31 chloroform. The other products are in small proportions and the result of secondary decomposition; hydrochloric acid results from the decomposition of some chloroform, and formiate of allyl from the decomposition of glycerin under the combined action of heat and nascent formic acid. To obtain the results as described, it is important that the glycerin should be syrupy; if water had been previously added, the greater part of the chloral will distil over undecomposed.—*Journ. de Pharm. et de Chim.*, 1873, *April*, 288—290.

Composition of some Nostrums. "Apotheker Zeitung," 1873, No. 9, gives the following composition of two American patent medicines, copied from "Industrie-Blätter":

Five-minute fragrant Pain-curer of the so-called New York Medical University: Ether 6 grams, glycerin 21, table-salt 3·4 and water 170 grams.

Dr. Pierce's favorite prescription for the cure of those chronic weaknesses and complaints peculiar to females: From savin 10, agaric 5, cinnamon 5, pale cinchona 10 grams, a decoction of 220 grams is obtained, to which are added 10 gm. gum arabic, 5 gm. sugar, 2 gm. tincture of digitalis, 2 gm. tincture of opium, and 8 drops oil of star anise dissolved in 45 grams of alcohol.

Pure Gallotannic Acid. Julius Lœwe has endeavored, by a series of elaborate experiments, to determine the composition of pure gallotannic acid and its relation to gallic acid. Commercial tannin was purified, 1, by dialyzing its alcoholic solution through a porous clay vessel, evaporating the dialyzed portion and taking up by ether; 2, by drying it for several months over sulphuric acid, taking up with anhydrous ether, agitating the solution with water and evaporating the lower stratum; 3, by dissolving it in a mixture of equal volumes of water and saturated table-salt solution, saturating the liquid with pure table-salt, treating the precipitate in the same manner, then dissolving it in dilute solution of table-salt, and extracting the pure tannin by acetic ether.

The resulting dense white or yellowish powder, which had been dried at 120° C. (248° F.), yielded, by ultimate analysis, results which closely agreed with the composition of gallic acid ($C_{28}H_{12}O_{20}$), minus 2O. Gallotannic acid may, however, be converted into gallic acid in an atmosphere entirely devoid of oxygen; the latter cannot, therefore, be a product of oxidation of the former. On exposing pure tannin for several hours in an air-bath to a temperature of 140—145° C. (284—293° F.), a loss in weight, due to expelled water, was observed, and the residue agreed better with the formula given by Mulder, $C_{28}H_{10}O_{15}$. This appears to be the correct empirical formula; the tannin, however, even when dried at 120° C., persistently retains a little water.

That tannin is not merely the anhydride of gallic acid, but that on conversion into the latter the grouping of the elements must be changed, is proven by the action of concentrated sulphuric acid upon the two compounds at the temperature of the water-bath. Gallic acid yields under these conditions rufigallic acid, while gallotannic acid gives, under the evolution of much sulphurous acid, a brown amorphous product which is not related to rufigallic acid.

An aqueous solution of pure tannin is not affected by exposure to the light, if the atmosphere be excluded.—*Zeitschr. f. Anal. Chemie*, 1872, xi, 365—381.

Estimation of Alcohol in Chloroform. Dr. A. C. Oudemans, Jr., recommends to agitate in a flask 7 to 10 c.c. of the chloroform at a temperature of 17° C. (62·6° F.) with an excess of dry cinchonia. After an hour the liquid is filtered, the funnel being kept covered with glass, and 5 c.c. of the filtrate are evaporated in a tared capsule. From the weight of the dissolved cinchonia the alcohol may be estimated by the following table, in which the alcohol is given in per cent. by weight, and the solution (5 c.c.) measured at 17° C.:

Chloroform containing		Leaves milligrams	Chloroform containing		Leaves milligrams
0 per ct. alcohol		21	5 per ct. alcohol		226
1	"	67	6	"	260
2	"	111	7	"	290
3	"	152	8	"	318
4	"	190	9	"	343
			10	"	366

The following table shows the amount of cinchonia soluble in 100 parts of chloroform containing the percentage of alcohol stated:

Containing	0	per ct.	alcohol,	0·28	cinch.	Containing	5	per ct.	alcohol,	2·96	cinch.
"	1	"	"	0·90	"	"	6	"	"	3·39	"
"	2	"	"	1·46	"	"	7	"	"	3·79	"
"	3	"	"	1·99	"	"	8	"	"	4·15	"
"	4	"	"	2·49	"	"	9	"	"	4·48	"
						"	10	"	"	4·76	"

The cinchonia is best prepared for the above purpose by precipitating with ammonia a solution of a pure cinchonia salt in weak alcohol; the alkaloid is then obtained in microscopic crystals, which are readily soluble.—*Ibid.*, 409, 410.

Minutes of the Philadelphia College of Pharmacy.

The annual meeting of the Philadelphia College of Pharmacy was held at the College building March 31st, 1873. 35 members present. Dillwyn Parrish, President, in the chair. In the absence of the Secretary, Charles Bullock, Joseph P. Remington read the minutes of the last meeting, which were adopted.

The minutes of the Board of Trustees were read by the Secretary of the Board, Wm. C. Bakes, and approved. The minutes inform that at the 52d annual Commencement of the College, held at the Academy of Music, on the 18th inst., the diploma of the College was conferred upon 94 graduates, the valedictory address being delivered by Prof. Robert Bridges.

Wm. C. Bakes, on behalf of the Committee on Honorary Membership, reported that acknowledgments of receipt of certificates had been received from several honorary and corresponding members.

The Committee on Sinking Fund reported a balance in favor of the College, deposited in the Western Saving Fund, of $2677 96.

After some discussion, the following resolution, presented by Robert Shoemaker, was adopted:

Resolved, That the Chairman of the Sinking Fund, and the Treasurer of the College, be directed to pay off scrip of the College to the amount of twenty-five hundred dollars.

The report of the Publication Committee was read by Professor Procter. It is as follows:

"The Publishing Committee respectfully report that the several branches under the supervision of the Committee have been successfully carried on, as will be seen by the annexed reports. The Editor in his report says: 'The Journal has been regularly issued during the past year. The arrangements with our foreign exchanges to send the Journals reciprocally by mail have been perfected with most, and the Journals have been duly received, no loss having accrued. This has enabled the editor to select the latest papers for publication.'

"The circulation of the Journal is continually on the increase, and the printing of a larger number than heretofore has become necessary.

"The Committee have printed nearly the whole of the *General Index* to the Journal, and hope before many weeks to be able to announce its completion. The excellence of this index becomes more apparent as it appears in print, and its usefulness to those who possess the Journal, or who may have access to it, will be very great, as it enables the reader who has any clue to his subject, or to the author's name to promptly find what he seeks. The editor, Mr. Hans M. Wilder, deserves great credit for his perseverance and accuracy in carrying on the work.

"The College is congratulated on the favorable condition of the finances of the Journal, as exhibited by the reports of the Treasurer and Business Editor.

Signed,
William Procter, Jr.,
John M. Maisch,
Charles Bullock,
James T. Shinn,
Committee.

The report was accepted and approved.

Professor Procter then read the following memoir of Professor Edward Parrish, on behalf of the committee on deceased members, which was attentively listened to. After a number of expressions of the deep and affectionate regard in which he was held, the memoir was directed to be published in the Journal:

EDWARD PARRISH.

Edward Parrish, the subject of this memorial, was born in Philadelphia on the 31st of May, 1822, at the old homestead in Arch street below Fourth, and was the seventh son of his parents, the late eminent physician and surgeon, Dr. Joseph Parrish, and Susanna, daughter of John Cox, of Burlington, N. J., all members of the Society of Friends.

He was educated in the Friends' School in Philadelphia, at that time among the best attainable, where he is said to have been well instructed in the elementary studies, and to have acquired a fair knowledge of the higher branches and the classics.

He early manifested an aptitude for scientific pursuits, and in the year 1838 was entered as an apprentice in the pharmaceutical store of his brother Dillwyn, at the south-west corner of Eighth and Arch streets. He is reported to have been attentive and faithful in the discharge of his shop duties and responsibilities, and, availing himself of the favorable opportunities afforded in the store and at the College of Pharmacy, near by, he acquired an excellent knowledge of his business, for which his taste and inclination were well adapted. His first course was under the instruction of Professors Franklin Bache and Joseph Carson, and his last under Profs. Carson and William R. Fisher, in the session 1841–42, Prof. Fisher occupying the chair of chemistry. In the Spring of 1842 Edward Parrish took his degree in pharmacy in the Philadelphia College, having written his thesis on Statice Caroliniana, which was published in Vol. XIV American Journal of Pharmacy.

In 1843 he purchased the drug store at the north-west corner of Ninth and Chestnut streets, previously conducted by George W. Ridgway, and which was contiguous to the University of Pennsylvania. Here he continued to practice his business until 1850. During this period he contributed several papers to the "Journal," and in 1848, in connection with his assistant, W. W. D. Livermore, a paper on Collodion, which was the first notice of that preparation occurring in our Journal, the discoverers at Boston not having published their process. During the same period two events, important in their influence on his life, transpired—one, his marriage with Margaret, the daughter of Uriah Hunt, of Philadelphia, who continued his closest friend and companion until her death, a few months before his own; the other, the inception, if not the establishment of his "School of Practical Pharmacy."

His proximity to the University brought him in constant contact with medical students and their wants, and was the origin of that favorite branch of his business which consisted in supplying the outfits of country practitioners.

Undoubtedly this intercourse with students, exhibiting to him as it did the serious disadvantages experienced by young physicians in entering on their practice, in rural districts and even in cities, without a more practical acquaintance with pharmacy, gave him the initial idea of his "Practical School," where young men could be taught to prepare the medicines of the Pharmacopœia by actual manipulation, accompanied by lectures on pharmacy and examinations by questions.

Accordingly, in the Autumn of 1849 he issued a prospectus addressed to medical students, was encouraged to proceed by the Professors of the University, and gave his first course of instruction to 14 students in the rear of the building at Ninth and Chestnut.

Soon after this time he removed from this locality and entered into business with his brother Dillwyn, at Eighth and Arch streets, where his "Practical School" was better accommodated and gradually increased in importance, being addressed to pharmaceutists as well as to medical students. In furtherance of his school he determined about this time to take a course of practical instruction in analysis in the laboratory of Prof. Booth, and afterwards a medical coursein the University of Pennsylvania.

Feeling the need of a text-book for his class, the wants of which were not met by the treatises in use, he decided to write a book addressed to medical and pharmaceutical students, and in the year 1855 he published the first edition, under the title of "Introduction to Practical Pharmacy," followed in 1859 and in 1864 by other more extended editions. In preparing the last, the author aimed to make it not only a treatise on practical pharmacy, but to include as well a formulary and a chapter on organic chemicals, useful in the shop, which caused a change in its title. The peculiar tendency of his mind to group and generalize had full sway during his preparation of this book, leading him to tabulate and classify the officinal formulæ, considering them together rather than impressing his individual experience on each.

Whatever place this work may take in science, there is no doubt that it met admirably the wants of the classes for whom it was prepared, and must be set down as a successful one, both as regards the good it has done and the profits that have accrued from its sale.

In 1857 his lecture on "Summer Medical Teaching in Philadelphia," given introductory to his course on pharmacy to medical students, was published. In this, after speaking of his earlier efforts in establishing his "School," he says: "Twenty-three courses of lectures and practical exercises (since 1849) have since been given to an aggregate of 299 medical students, drawn from nearly every State in the Union, and from British America. After near eight years' experience as teacher of this speciality, I need offer no apology for giving some general conclusions I have arrived at in regard to its utility as a branch of medical education, and the best means of imparting it." Again he says: "In claiming the position of a pioneer in this sort of teaching [in the U. S.], I do so with the confident belief that the time is approaching when its importance will be fully recognized, and when the education of the physician will be universally regarded as quite incomplete unless he has enjoyed the advantages of a more or less thorough practical teaching in pharmacy."

After describing the arrangement of his lectures, examinations and practical lessons, in which classes of 12 students in three sub-classes worked together and profited by each others labors, he says: "Classification in this, as in every other branch, gives great facility to the teacher and the learner, and by the aid of a text-book I have prepared with special reference to the course, I can promise you, in the 12 weeks which follow, the opportunity to obtain a sufficient knowledge of pharmacy to give you a fair start on the road to proficiency in the art of prescribing, preparing and dispensing medicines."

These few extracts will show that Edward Parrish had made considerable advancement as a teacher in imparting instruction to medical students before subsequently entering our faculty, and had carried on his school with an enthusiastic belief in its usefulness and efficiency.

The pharmaceutical meetings of the College (which were an offshoot from the interest awakened by the Pharmacopœia Committee of Revision of 1840) were frequently attended by Edward Parrish after he graduated; and, although his written communications to their proceedings were not numerous, he often gave interest to them by his practical remarks and by the exhibition of attractive objects. Being a ready speaker, he delighted on these occasions to bring forward subjects for discussion, and often without preparation added greatly to their interest. His genial manners, and earnest desire to render these meetings open to all who would come—members, students or strangers—assisted in prolonging their existence after they decreased in importance, from the cessation in great measure for several years of the experimental essays, which in the beginning had given character and importance to their transactions.

Edward Parrish early determined to pursue a scientific career, aspired to a position in the schools, and was deeply impressed with a belief in his ability to teach. When the chair of Materia Medica was vacated in 1850 by the retirement of Dr. Carson, he was a candidate for the vacancy, but the traditional influence of the idea that that chair was best filled by a physician, led to the election of Dr. R. P. Thomas. In the Spring of 1864, however, on the death of Dr Thomas, he was elected to fill the vacancy, as Professor of Materia Medica, and continued in that office till 1867, when he exchanged chairs with Prof. Maisch, and, assuming the duties of the Professorship of Practical

Pharmacy, more in accordance with his inclination and habits, continued until his decease to lecture annually to increasingly large classes.

Professor Parrish was always popular with the students; his free and open manner, the interest he took in the class individually and collectively, and, above all, his good delivery as a speaker, rendered him a favorite and gave him influence. For several years prior to his death other engagements had trenched greatly on the time required by his professorial duties, but in 1871 he was relieved from these, and, had his life been spared to continue the increased devotion to his science which this relief had promised, there is no doubt that his career would have been increasingly useful as a teacher of practical pharmacy.

Edward Parrish was elected a member of this College in 1843, became a member of the Board of Trustees in March, 1845, and was its Secretary from 1845 to 1852. In 1854 he was elected to the Secretaryship of the College, and continued in that office until he entered the Faculty, in 1864. In 1847 he was one of a committee of fifteen members to report on the Pharmacopœia previous to the convention of 1850, and in 1859 and 1869 he acted on similar committees previous to the conventions of 1860 and 1870. He was also a delegate to the Pharmacopœia Convention of 1860 for Revising the Pharmacopœia, and in 1869 was one of three delegates appointed by our College to the International Pharmaceutical Congress of Paris, but was not able to attend. In 1850 he was elected a member of the Publishing Committee of the College and continued in it until 1870. His contributions to the Journal during this period were about forty in number, and embraced, besides papers on materia medica and pharmaceutical preparations, essays of a biographical and historical character, notes of travel, ethical criticism, and reports on various subjects. During a part of this time he also wrote editorial notes and criticisms for the Druggists' Circular, N. Y.

Prof. Parrish became a member of the American Pharmaceutical Association at its first meeting in Philadelphia, in 1852, was elected Recording Secretary at the Boston meeting, in 1853, First Vice-President in 1866, and President of the Association at the meeting of 1868. He acted on many of its committees, assisted in the revisions of the Constitution and other labor, and, when present, always took an active part in the discussions, as the published minutes give evidence. Quite a number of papers and reports, scattered over the twenty volumes of Proceedings, mark the interest he manifested in this way in the advancement of pharmacy.

The tendency of his mind may be seen by a glance at the papers—but few are on physical or chemical investigation, the greater part being such as could be written by reflection and study, without experiment. His ready pen was always at command to bring together in order the results of reflection and inquiry, whether these related to the ethics of pharmacy, the by-laws of the Association, or the advantages of education, general or special. Moreover, though not himself possessed of an inventive genius, he delighted in new inventions or improvements in pharmacy, and was always ready to encourage their authors, and to be the means of spreading a knowledge of them by tongue or pen.

In 1858 Prof. Parrish made a hurried trip to Europe, but limited his travels to England and Scotland, with a brief tour to Paris, Strasburg and the Rhine, availing himself of the opportunity to make acquaintance with pharmaceutists and their institutions. In a series of letters published in 1859, in the "American Journal of Pharmacy," he gave some of the results of this voyage.

About this period he published a little book entitled "The Phantom Bouquet," which treated of the art of skeletonizing leaves and other parts of plants.

In the year 1864 the project of establishing a collegiate institution under the direction of the Society of Friends which had long been entertained by some of its members, culminated in obtaining the Act of incorporation of Swarthmore College, and the purchase of a farm site of 93 acres in Delaware Co., Pa. Deeply impressed with the importance of more thoroughness in education and with the newer views in regard to the manner and means of educating the youth of both sexes, he gave the subject deep attention, and, entering the field in 1862, became one of the most successful pioneers in the work of advocating the claims of Swarthmore to those who held the means for its completion: serving as Secretary to the Board of Managers from December, 1864, until the completion of the building in 1868.

When finally the massive structure was completed, and the corps of professors and teachers with the pupils were gathered within its walls, Prof. Parrish was officially declared the first President of Swarthmore College, and continued in office during nearly two years.

We cannot do better than give the following extract from the last report of the managers of that institution in alluding to the decease of our friend: "One of the pioneers engaged in enlisting the minds of Friends in the great work of founding a college, he was a most earnest and indefatigable laborer in the cause, and it was largely owing to his personal exertions that success so early crowned our efforts. Very many of the stockholders will remember that their interest in Swarthmore was first awakened by his voice and pen. By conversation in that wide circle of Friends in which he moved, and where he was so much beloved; by extensive correspondence; by public addresses, and by his work entitled "Education in the Society of Friends," he did much to arouse attention to the importance of establishing among us an institution for higher culture—culture not of the mind alone, but of the heart as well; and thus, in connection with his untiring efforts to secure the means necessary to carry out this design, he performed a labor destined to have a lasting influence for good upon our religious Society and upon the community at large."

On the several occasions when legislative encroachment on the best interests of pharmacy needed resistance, or when legislative aid and protection were to be sought, our friend took an active and efficient part; and on the passage of the Pharmacy Act of 1872 he was one of the five commissioners appointed by the Mayor of Philadelphia to carry the law into effect. The labor incident to the organization of the Board, and the subsequent service required in the examination of numerous assistants seeking registration under this law, protracted till late in July, doubtless had some influence in undermining his health, not yet recovered from the severe shock it had received by the sudden death of his wife, and probably contributed to his approaching end.

In the following month (August, 1872), the Government of the United States, desiring to settle some difficulties with certain Indian tribes, in the direction of peace, appointed Prof. Parrish and Captain Alvord as Commissioners. In entering upon this last act of his life he was advised by his family, who believed his health, then below its ordinary status, would be benefitted by the journey. But the unforeseen exposure incident to a long and rough stage ride through the wilderness proving too heavy a tax on his impaired vitality, offered him a prey to the malarial fever of the country, and before he could fully accomplish his mission of peace he fell a victim to the climate, in the 51st year of his age.

Edward Parrish possessed social qualities of a high order: his conversational powers were good, his information on ordinary subjects general, his interest in modern progressive ideas considerable, and he was never happier than when his friends were around him in the family circle interchanging ideas.

His home instincts were strong: his wife and children ever occupied a prominent place in his plans and arrangements; for them no sacrifice was too great, no pleasure too rich, no necessity too expensive, and whether fortune smiled on him or frowned he was the same kind and liberal husband and father, the same sympathetic brother and friend. There was nothing mean or contracted in his nature, and in business his competition was unmarked by bitterness or personality.

Prof. Parrish was by nature ambitious of distinction among his fellows, yet his yearnings after power or place were influenced by a spirit at once mild, benevolent and lovable. His intellect, which was clear and forcible, he had cultivated by reading and conversation. Had it been steadily concentrated in the line of his profession, it would have led him to honors far higher than those to which he attained; but, by directing his attention to too many objects, his efforts lost in power and thoroughness what they gained in variety and popularity.

Although originality was not a prominent trait among his mental characteristics, his mind was active and ready; he was quick to catch ideas when presented, manifested much excellence of judgment in adapting them to his purposes, and it was generally with graceful acknowledgments that he rendered tribute to others when occasion required. It was in his manner of grouping and classifying facts, and of lucidly presenting subjects to his readers, that his personality was most deeply impressed on his literary labors in pharmacy.

Nature had endowed him with a gift of speech well adapted to the platform, and some of his ablest efforts have been introductory and valedictory addresses. As a teacher of pharmacy in the lecture-room, he loved to array the leading facts in generic groupings on the blackboard, using the more prominent individual substances for special comment on the table, often bringing in anecdote to enliven his subject. Less happy as a manipulator than as a speaker, Professor Parrish trusted more to his ability to convey his meaning by figures of speech than to annoying and often troublesome demonstrations by practical experiments; nevertheless he was conscious of the important and valuable aid derived from object-teaching and the exhibition of actual processes, and in his last course introduced several important improvements in his methods of illustration.

As a business man, his mind was too much given to outside matters to push his interests by close personal attention, during a large portion of his business life, and they not unfrequently suffered from too much devotion to other objects and interests wholly disconnected with his own personal advantage.

Prof. Parrish was known among pharmaceutists abroad, but more especially in England, chiefly through his writings, which are held in much esteem, and the Pharmaceutical Society of Great Britain and the British Pharmaceutical Conference have each shown their appreciation of him by honorary memberships; whilst at home, besides being in membership with various societies, his name is as a household word among the members of the pharmaceutical and medical professions.

He was a consistent member of the Society of Friends, took much interest in various labors connected with it, and was engaged in carrying out one of its testimonies when the grim messenger came to him unexpectedly, far away from home and kindred, in the western wilderness. But our friend had so lived that he was able to accept the grave summons with equanimity, and, bidding a mental adieu to his distant loved ones, he calmly drew his mantle of religious faith around him, and resigned himself to the will of Providence without a murmur.

Prof. Parrish leaves four sons and a daughter to keep green his remembrance and to imitate his virtues.

Caleb A. Needles called the attention of the College to the fact that "An Act relating to the licensing of Druggists was before the Legislature at Harrisburg," and that it contained some provisions which were infamous. Professor Maisch read a copy of the Act, and it was decided that immediate action on the part of the College was necessary, and the chairman appointed Charles Bullock, John M. Maisch, James T. Shinn, Wm. C. Bakes and Caleb R. Keeney, a committee to use every exertion to prevent its passage, although a doubt was expressed on the part of many that an act so unjust and absurd in many particulars, could receive the Governor's signature *

Professor Procter presented to the College, from Dr. W. Kent Gilbert, a valuable botanical work, entitled "Hortus Elthamensis, Auctore J. J. Dillenia, Londini 1732," which was received with thanks, and the Secretary directed to present the thanks of the College to him for the gift.

The following letter from Charles Bullock, Secretary of the College, was read:

"*To the Philadelphia College of Pharmacy:—*

"The undersigned, having served the College in the capacity of Secretary for a number of years, feels that the time has arrived for him to request to be relieved from that service, and respectfully requests that his fellow-members will accept this his resignation from that post.

"With unabated interest in the College, your fellow member,

March 31*st*, 1873. Charles Bullock."

The Secretary's resignation was accepted, and the thanks of the College are due him for his disinterested efforts on her behalf.

The annual election being ordered, the following members were elected to serve the ensuing year:

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* The act was defeated in the House of Representatives.

President, Dillwyn Parrish.

1st Vice-President, William Procter, Jr.

2d Vice-President, Robert Shoemaker.

Treasurer, Samuel S. Bunting.

Recording Secretary, William J. Jenks.

Corresponding Secretary, Alfred B. Taylor.

Trustees, Robert Bridges, M. D., Joseph P. Remington, T. Morris Perot, William B. Webb, James T. Shinn, Daniel S. Jones, John M. Maisch, Thomas S. Wiegand.

Publishing Committee, Thomas S. Wiegand, John M. Maisch, William Procter, Jr., James T. Shinn, Charles Bullock.

Committee on Sinking Fund, Thomas S. Weigand, T. Morris Perot, James T. Shinn.

Editor, John M. Maisch.

Librarian, Thomas S. Wiegand.

Curator, Joseph P. Remington.

Charles Bullock was unanimously elected a trustee in place of William J. Jenks, appointed Secretary.

The Librarian and Curator each made a verbal report, in which they stated that some progress was being made in re-arranging the Library, and refitting and enlarging the Cabinet. On motion, then adjourned.

Joseph P. Remington, *Secretary pro tem.*

Minutes of the Pharmaceutical Meetings.

Minutes of the Pharmaceutical Meeting held April 15th, 1873.

Meeting called to order, Wm. McIntyre in the chair. The reading of the minutes of the last meeting was dispensed with.

The following books and pamphlets were presented to the College: "Proceedings of the American Pharmaceutical Association," vol. 20th, containing an account of the meeting held in Cleveland, Ohio; "The Year Book of Pharmacy," and the "Transactions of the British Pharmaceutical Conference Ninth Annual Meeting;" "Proceedings of the Fourth Annual Meeting of the California Pharmaceutical Society;" "Proceedings of the Third Annual Meeting of the Vermont Pharmaceutical Society," and "Des Aconits et de l'Aconitine," par Charles Patrouillard.

Prof. Maisch, on behalf of Messrs. G. Mallinckrodt & Co., of St. Louis, presented a sample of carbazotate of ammonia. This carbazotate of ammonia has been recommended by Dr. Dujardin-Beaumetz, of Paris, *as a substitute for quinia in the treatment of fevers. The donors write that it has been used by a number of physicians in St. Louis, and with marked success in some severe cases where quinia and arsenic had failed. These physicians have promised to report their experience through the Journals, and it is believed, from the statements made thus far, that if this preparation does not prove a substitute for, it will at least become a valuable adjuvant to quinia in the treatment of intermittent fever. The dose is from one to two-thirds grains per day, given in the form of pills, made with any simple excipient.

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* See page 221 of the present number.

Prof. Maisch showed specimens of the bark of Eucalyptus globulus, which appears to be used in Europe for similar purposes as the leaves. Attention was also drawn to the variation in the shape of the latter.

A specimen of the oleate of mercury and morphia made by the process of Mr. Charles Rice,* was shown, which was at first nearly transparent but probably through its exposure to the light and air, had separated a heavy precipitate. It is perhaps necessary to protect this preparation against the influence of the agents mentioned.

From a large collection of drugs and plants, received from M. J. Dondé, of Merida, Yucatan, Professor Maisch exhibited to the meeting preserved specimens of Okra, the green fruit of Hibiscus esculentus, which is cultivated to some extent in the United States, and used for its mucilaginous properties.

Preserved and dried specimens of *Semillis marannon*, the Cachon nut, Anacardium occidentale, were also shown. After fructification, the peduncle enlarges considerably, forming an edible spurious fruit, bearing upon its apex the true fruit, a kidney-shaped nut, having a seed-like appearance, which contains, under the pericarp, a very acrid and poisonous oil, containing cardol; the kernel is edible, of a pleasant nut-like flavor, and may be obtained by roasting the fruit, whereby the acrid oil is destroyed. Of a similar nature and similar properties are the so-called Malacca nuts, the fruit of Semecarpus anacardium, which is almost heart-shaped. The acrid oil of the latter has a black color, is used in the East Indies like ink, and was lately recommended for imparting a black color to wax candles.

Mr. Boring stated that he had been unable to find more than one sample of yellow mustard which had not been colored with turmeric; with all, except the one, known as Frühauf's Russian mustard, the characteristic brown red color is produced on the addition of solution of boracic acid; while many of the samples were not affected by iodine solution, several of the most popular brands show by this test a considerable quantity of starch; in these cases an artificial strength appears to be imparted by capsicum. Yellow mustard, the color of which is heightened by turmeric, deserves to be regarded with suspicion until its freedom from other adulterations has been established.

Prof. Maisch exhibited a piece of soap which had been made from fresh palm oil in Liberia, at the suggestion of Edward S Morris, Esq. Although of a dark color, the soap has a delightful violet odor, being vastly superior in this respect to the soap made here from imported palm oil, which, in consequence of long keeping and exposure, is always rancid.

Oil of valerian and several compounds of valerianic acid were exhibited, which were made from valerian root, eight or nine years ago. These valerianates are greatly superior in odor to those obtained by the oxidation of amylic alcohol. In connection with this subject it was stated that the valerian root of our commerce, that known as English valerian as well as the German, is frequently very unclean, containing sometimes perhaps 25 to 30 p. ct. of dirt enclosed between the rootlets. It appears that this is more frequently the case with valerian grown in damp localities, while the shorter and lighter colored roots of the plant, growing in dry situations, do not favor such intentional carelessness.

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* See American Journal of Pharmacy, January, 1873.

Professor Maisch exhibited a number of plates from the imperial printing office at Vienna, obtained by what is known as the nature printing process. An impression in lead is obtained by placing leaves or similar thin objects, between plates of lead and steel, and subjecting them to powerful pressure; from a cast made of this impression an electrotype is subsequently obtained, which is used for printing in the ordinary way. The prints exhibit the shape and the venation of the leaves perfectly.

Mr. Brown stated that he experimented in making syrup of lactophosphate of lime with the substitution of glucose for sugar; in his experience, this obviated the precipitation frequently met with. The dilute lactic acid of our commerce was described as being the concentrated or the officinal acid reduced to 4° Beaumé, by the addition of distilled water.

Then adjourned. Clemmons Parrish, *Registrar*.

Pharmaceutical Colleges and Associations.

The New York College of Pharmacy.—At the commencement, held March 31st, the following gentlemen received their diplomas, conferring the degree of Graduate in Pharmacy:

Starr H. Ambler, Chester D. Ayres, Alanson T. Briggs, William Falke, Victor E. Forbes, John Gannon, Benjamin W. Goode, John B. Hasslocher, William F. Henes, Charles Holzhauer, Julius Kalish, Warren S. Kissam, Albert F. G. Kuehn, David Master, Jr., Emil Mayer, Wilhelm Meschenmoser, Joseph Meyer, Benjamin Morje, Domingo Peraza, John F. Peterman, Charles A. Robbins, William G. Rothe, Edward W. Runyon, Charles F. Schleussner, C. Albert Schreck, Gustavus Seelbach, E. Y. Shearer, Nicholas Slipner, Henry Syvarth, John Vanderbeugle, Eugene C. Van Namee, Jewett W. Watson, Chas. H. Wiberly.

The Valedictory Address was delivered by Prof. W. De F. Day, M.D.

A special meeting of the Board of Trustees was held Thursday evening, the 17th, at 7 P.M., in order to ratify the arrangement made by the Lecture Committee for the 44th course, and receive report of Curators and Secretary in regard to engaging a suitable person as Clerk of the College.

The Lecture Committee had engaged Prof. Chas. F. Chandler, Ph. D., as Professor of Chemistry, W. De F. Day, M.D., as Professor of Materia Medica and Botany, P. W. Bedford, Esq., as Lecturer on Pharmacy, and Chas. Froebel, Esq., as Adjunct Instructor for Analytical and Pharmaceutical Chemistry and Practical Botany.

The Curators and Secretary united in recommending Mr. Chas. Froebel as Clerk of the College, Assistant Curator and Registrar.

The reports were accepted and both committees empowered to complete their arrangements.

A conversational meeting of the members of the New York College was held on the same evening, at 8 P.M.

Notwithstanding the rainy and stormy night, the new lecture-hall of the College was comfortably filled by members and their friends, to hear the very interesting lecture of Prof. C. F. Chandler, Ph. D, on Modern Chemistry. The lecture was listened to with great attention, and was delivered in a clear and instructive manner.

The Alumni Association of the College of Pharmacy of the City of New York held its annual meeting on Thursday evening, April 3d, when twenty-five new members were elected.

President Robbins read his annual address. Papers were read by Mr. Jules L. A. Creuse on "A New Series of Tasteless Iron Combinations," and by Mr. B. F. McIntyre on "The Fluid Extract of Ipecac of the New Pharmacopœia." Both papers are published in the present number of this Journal.

The following officers were elected for the ensuing year: President—D. C. Robbins; Vice Presidents—G. C. Close, O. C. Weinmann, Hampden Osborne; Treasurer—Theobald Frohwein; Secretary—J. F. Main; Executive Board—B. F. McIntyre, G. W. C. Phillips, J. Vanderbeugle, J. L. A. Creuse, L. M. Rice, P. W. Bedford; Delegates to the Meeting of the Pharmaceutical Association—L. M. Rice, H. C. Porter, Ed. Henes, P. W. Bedford, H. Osborne.

Several amendments to the Constitution were proposed and referred to the next annual meeting. It was resolved to hold quarterly meetings for the purpose of friendly intercourse and exchange of ideas on pharmacy, the meetings to be held on the same evenings as those of the Executive Board, and a Committee of three was appointed to secure papers to be read at these meetings.

The Association then adjourned

The Maryland College of Pharmacy held a stated meeting April 10th, the President, J. F. Moore, in the chair.

The minutes of the last annual meeting were read and approved. A resolution of thanks to Prof. I. J. Grahame, for his excellent and very edifying Annual Address, was adopted, and the Secretary was instructed to have the address published in pamphlet form.

The following gentlemen have been elected Professors for the ensuing year, viz.: Dr. J. F. Moore, Professor of Pharmacy; Dr. Claude Baxley, Professor of Botany and Materia Medica, and Dr. Wm. Simon, Professor of Chemistry and of Analytical Chemistry.

Letters were received from the two gentlemen upon whom the degree of Doctor of Pharmacy had been conferred, acknowledging the honors.

Three special committees reported progress and were continued.

Mr. John P. Pignett presented an interesting essayon "Tincture of Chloride of Iron," detailing a process by which it can be made in less than twenty-four hours.

The St. Louis College of Pharmacy.—After the lectures had been suspended for several years, on account of the departure of some of the professors from St. Louis, this College became reorganized in the Fall of 1871, and commenced its lectures, during the latter part of October, with about one dozen students. The number had increased during the last season to 23, of whom seven graduated; the examination was conducted by written and oral questions. For the next Summer, a class in chemistry has been organized by the Professor of Chemistry, Dr. Theo. Fay, who has also provided himself with abundant apparatus and utensils to illustrate his lectures by experiments.

It is to be regretted that the lower house of the Legislature of Missouri has not yet passed the "Act to regulate the practice of Pharmacy in the City of St. Louis," which has been adopted by the Senate; but in all probability the law will be taken up again and passed at the adjourned session during next Winter—especially since several flagrant cases of ignorance by drug-store keepers have been recorded of late, which have aroused the public to demand legislation in favor of the protection of their lives against ignorance.

TENNESSEE COLLEGE OF PHARMACY.—At the meeting of the Tennessee Medical Society, held at Nashville April 2d, the following communication was read:

Nashville, April 2, 1873.

To the President and Members of the Tennessee State Medical Society:

Gentlemen.—Knowing that the advancement of pharmacy is of equal interest and importance to the physician and pharmacist, and feeling that the medical profession will now, as heretofore, lend its aid to the advancement of all true progress in either science, I desire to call your attention to the fact that a "College of Pharmacy" has been organized in this city, with fair prospect of success; and that the druggists of this State are expected to assemble here next month to organize a "State Pharmaceutical Society," and take such other steps as may be necessary to "encourage proper relations between druggists, physicians and the people at large, to improve the science and art of pharmacy, suppress empiricism, and secure the enactment of laws regulating the drug business in our State."

Hoping these enterprises may meet with encouragement and support from your honorable body, I remain, Very truly, yours, &c.,

BENJ. LILLARD, Phar. D.,
President Tennessee College of Pharmacy.

The Tennessee Medical Society, of which Dr. Lillard was elected an honorary member, pledged the encouragement and support of its members, individually and collectively, to the Tennessee College of Pharmacy and the proposed State Pharmaceutical Association.

THE MISSISSIPPI STATE PHARMACEUTICAL ASSOCIATION held its annual meeting in Vicksburg, April 9th, the President, M. F. Ash, in the chair; J. T. Buck, Secretary. A large delegation from all parts of the State was present.

In his address the President urged upon the members, as their professional duty, integrity of character and a proper appreciation of their responsible duties. Attention was directed to the code of ethics, to the progress of pharmacy, the growth of the Association, the need of reform in the practice of pharmacy, and the benefit to be derived from unity of action.

The question of legislation affecting the practice of pharmacy was discussed at length, and finally referred back to the committee.

After the election of new members, the following officers were elected for the ensuing year:

President—Hampden Osborne, Columbus; Vice President—J. S. Caire, Okolona; Recording Secretary—P. Keefe, Vicksburg; Corresponding Secretary—J. S. Mosely, West Point; Treasurer—M. F. Ash, Jackson.

The new officers being duly installed, a motion prevailed to adjourn, to meet in the City of Columbus on the second Wednesday in April, 1874.

Jno. T. Buck, *Secretary.*

Pharmaceutical Society of Great Britain.—At the pharmaceutical meeting held April 2d, Mr. A. F. Haselden presiding, Mr. Martindale read a paper on a "New Basis for Suppositories and Pessaries," and exhibited specimens made with the proposed base, which consists of equal parts by weight of oleic and stearic acids. The author considers such a mixture very superior to those in general use, for the following reasons: 1. It has a very low fusing point, and readily melts at the temperature of the body. 2. The suppositories leave the mould without difficulty, owing to the considerable expansion when heated, and the consequent contraction on solidifying, estimated by the author at more than 11 per cent. 3. The basis is a solvent of alkaloids (morphia, atropia, &c.), and is readily absorbed by the epidermis and mucous membrane, at least so far as the oleic acid is concerned. 4. On account of the partial crystallization of some of the stearic acid, the suppositories are firm, and can be placed in their position without difficulty, not being elastic, brittle or yielding in any way. 5. The proportions of stearic and oleic acids can be varied to suit the temperature of Summer or Winter and also the other ingredients prescribed with them.

A lengthy and very interesting discussion then took place on the proposed appendix to the British Pharmacopœia, after which Mr. Thomas Greenish read a paper on the "Mustard of the Pharmacopœia," reviewing the officinal formulas, since 1788, for Cataplasma sinapis, and suggesting an alteration in the manipulation directed in the British Pharmacopœia, so as to avoid the coagulation of the myrosin, and consequently develop the full virtues of the mustard cataplasm. Mustard flour is made in England by crushing black and white mustard seeds separately, and then mixing them in definite proportions.

Professor Bentley said that all the mustard he had examined contained a notable quantity of black mustard seed. White mustard seed alone would not at all meet the desire of those who use mustard. Black mustard is too powerful, too pungent; but, if mixed with white mustard, an agreeable flavor is obtained.

Mr. Bland believed that exaggerated notions prevailed with regard to the adulteration of mustard, and that the principal obstacle in the way of getting the genuine article had been the unwillingness to pay a decent price for it. With regard to the fixed oil that had been recommended as a remedy for rheumatism, he was not inclined to attribute to it any great value.

Pharmaceutical Society of Paris.—Mr. Bussy presided at the meeting of March 5th. Mr. Méhu claimed for Professor G. Dragendorff, of Dorpat, and his co-laborers, Bluhm and E. Masing, the discovery of the alkaline cantharidates, their preparation, analysis, &c. As early as 1866, and again in 1869, these chemists have described the application of alcohol in preparing cantharidate of potassium, but considered the use of water as far preferable.

A complaint was made that at Caen the brothers and sisters of a deceased pharmacist carried on the business with the aid of an examined assistance; it was stated that in the neighborhood of Paris it is customary to accord to all heirs, children brothers and sisters, as well as to widows, the same delay under the same conditions; the authorization is usually granted by the prefect of police upon a favorable recommendation of the Ecole de Pharmacie.

Mr. Fr. Wurtz read a report on commercial propylamina, which has lately been experimented with by Dr. Dujardin-Beaumetz. This so-called propylamina had been obtained from herring pickle, and has long since been proven, by Winckler, to consist mainly of trimethylamina, identical with that obtained by him by synthesis. In 1869 Sylva prepared propylamina from propylic alcohol, and found its chemical properties to be analogous to those of trimethylamina and of Gautier's isopropylamina; the three bases, however, differ in their boiling point and in the crystalline form of their salts. Trimethylamina boils between 4 and 5°, propylamina between 49 and 50°, and isopropylamina between 31 and 32° C. The three bases are isomeric, consisting of $C_6 H_9 N$. The reporter concludes that the commercial so called propylamina is merely a more or less pure aqueous solution of trimethylamina, without definite strength, which should be replaced by a standard solution of the pure alkaloid, or by its crystallized muriate, if the salt should possess the same medicinal properties as the former. For medicinal purposes it is recommended to convert methylic alcohol into methyl iodide, to heat the latter under pressure with ammonia, to wash the crystals of iodide of tetramethyl-ammonium with cold distilled water, in which they are nearly insoluble, to remove ammonium iodide, and finally to decompose by lime, collecting the gas in water; this solution should then be brought to a definite strength. The muriate is easily prepared from it by saturating with hydrochloric acid; the salt recently used with success by Dr. Dujardin-Beaumetz was made by the process described.

Mr. Petit remarked that he has frequently found commercial propylamina to be richer in ammonia than in other bases. The alkaline strength was observed to vary between 2 and 52 centigrams in the cubic centimeter; the equivalent weight of ammonia and propylamina being 17 and 59 respectively, the amount of the former may be ascertained by neutralizing a given quantity with hydrochloric acid and weighing the residue left on evaporation.

Mr. Lefort remarked that muriate of propylamina is very soluble in absolute alcohol, while muriate of ammonia does not dissolve therein to an appreciable extent.

Mr. Lefort read an essay on protiodide of mercury, an abstract of which is published on page 218 of this number.

Mr. Bussy stated that he had found several samples of sulphovinate of sodium to contain sometimes large quantities of bisulphate of sodium, which salt was present not perhaps in consequence of intended fraud, but rather on account of a prolonged exposure to a high temperature in the presence of water.

Mr. Limousin said that sulphovinate of sodium is very hygroscopic, and that if the absorbed water is expelled at a temperature of 100 to 120° C., the salt is partially decomposed into bisulphate of sodium and alcohol.

Mr. Jungfleisch added, that on evaporating large quantities of solutions of this salt, the water favors the decomposition spoken of, the solution sometimes becoming strongly acid. The decomposition can be prevented only by using a large excess of alcohol, whereby Mr. Limousin said an excellent product is obtained, but at too high a price.

Prolonged contact with water alone favors this decomposition, and Mr. Boudet called attention to the danger of the occurrence of decomposition, if the sulphovinate is prescribed in large quantities.

Editorial Department.

An Explosion of a Mixture of Chlorate of Potassium and Tannin, we are informed, occurred again in this city on the sixth of April last, and the dispenser was severely injured thereby in the face and on the hands. On page 470 of the *American Journal of Pharmacy* for 1869, a similar case is recorded, and others have been noticed by medical, pharmaceutical and chemical journals of this country and elsewhere.

The explosive nature of mixtures of chlorate of potassium with combustible and oxidizable materials is well known to chemists, and chemical works usually draw attention to the danger attending the mixing of such articles in a dry state in a mortar or with pressure. Chemical students are familiar with the lecture experiment of producing detonations by triturating the chlorate with some sulphur; such detonations unaccompanied by danger, are liable to occur even on rubbing, with some pressure, chlorate of potassium in a dusty mortar. The experiment, however, becomes at once dangerous, as soon as a sufficient quantity of a combustible article has been incorporated with the powdered chlorate, and the explosiveness of such mixtures increases with the combustibility of their ingredients.

The blasting and so called white gun-powders which were recommended some twenty years ago, are such mixtures. The former contain red sulphuret of arsenic or ferrocyanide of potassium, or both, and their danger was made manifest by an accident which happened to the inventor and patentee, Mr. Callow, who was rendered a cripple for life. Such explosions are not only liable to take place by rubbing or by a blow, but also on the addition of acids sufficiently concentrated to decompose a portion of the chlorate and locally heat the mixture. Strong sulphuric acid is especially dangerous from the last named causes.

Whenever chlorate of potassium is prescribed in the form of powder mixed with *any organic* or with an *oxidizable inorganic* compound, the only safe way to dispense such a prescription is to triturate the materials *separately* until they are reduced to a fine powder, and then mix the powders intimately upon paper without friction. In preparing gargles and other liquid medicines containing such ingredients, the latter should never be mixed in a mortar until after a sufficient quantity of water has been added.

But even though such *dry* mixtures may be prepared by the pharmacist without danger to himself, we question whether the physician is justified to prescribe them, considering the danger to which he exposes his patient. Several years ago, we remember that such a mixture exploded, from some cause or other in the house of the patient, happily, however, without doing any injury, except setting fire to a few contiguous articles.

OBITUARY.

John Torrey, M. D., LL. D., was born in New York in the year 1798, and died there March 2d, aged 75 years. He received his degree of M. D. at the College of Physicians and Surgeons of New York and served from 1827 to 1854 as Professor of Chemistry and Botany in the same College, after having previously held for three years the position of Professor of Chemistry in the military academy at West Point. Since 1853 to the time of his death he was the Chief Assayer in the United States Assay Office in New York.

Dr Torrey was an indefatigable laborer and attained more than ordinary success in various branches of science; but his most important labors were in the field of botany. As early as 1817 he published a catalogue of the plants growing within 30 miles of New York, subsequently a "Flora of the Northern United States," and the botanical part of the natural history survey of the State of New York. In connection with his former pupil, Professor Asa Gray, he elaborated the botanical collections of the exploring expeditions of the National Government and published, since 1838, the "Flora of the United States," which work we believe, has not been completed yet.

He was kind and genial in his intercourse with others, and always ready to cheer and aid the student with his valuable counsel.

Justus von Liebig died at Munich on the 18th day of April, at the age of 70 years. He was born May 8th, 1803, at Darmstadt, where his father carried on a business in paints and druggists' materials, and by experiments for preparing paints and chemicals incited at an early period his son's inclination and fondness of experimental chemistry and his study of chemical literature, of which he found a good supply at the Court Library at Darmstadt. Determined to become a chemist, Liebig was apprenticed in 1818 to an apothecary in Heppenheim, but soon left him (in 1819) to go to the university of Bonn, and afterwards to Erlangen, to study the natural sciences and particularly chemistry. But his favorite science was at that time little cultivated at the German Universities; in 1822 he went to Paris to receive the instructions of masters like Gay-Lussac, Thenard, Dulong, etc., and soon after presented to the Paris Academy of Sciences his researches on fulminic acid, which directed Alexander von Humboldt's attention towards him, through whom Gay-Lussac was more especially interested in the young chemist, so that he took the latter into his private laboratory.

In 1824, Liebig received the appointment as professor extraordinary of chemistry at the University of Giessen, and two years later as ordinary professor. Here he established a model chemical laboratory and reorganized the practical instruction so that the little University soon became celebrated, attracting a large number of students. In 1845 he was made a Baron, and having declined all previous offers to other Universities, he accepted in 1852 a call to Munich, where he became professor of chemistry and conservator of the laboratory, and subsequently President of the Academy of Sciences and Conservator General of all the scientific cabinets belonging to the State of Bavaria.

Under Gay-Lussac's guidance already, he commenced his labors for perfecting the methods of elementary analysis, in which he subsequently succeeded so well that for more than 40 years nearly all ultimate analyses have been made according to his plans or by slight modifications of the same.

Liebig's researches are by far too numerous to be mentioned even in the limited space of this sketch; but there is hardly a section of organic chemistry which has not been enriched by his own personal labors, or by the investigations of his pupils performed under his supervision. His researches were undertaken not solely for the purpose of establishing or combatting a theory, but he was always inclined to point out the practical utility of the results obtained towards their technical application or to the vital affairs of man; his researches in agricultural and animal chemistry, his soup for infants, extract of meat, etc., afford abundant proofs of the latter, while many of the industrial processes now in use were either elaborated by him or are but slightly modified from his suggestions. Many of his investigations were made in conjunction with other chemists, some of the earlier with Pelouze; but particularly fruitful were his joint labors with Wöhler, who, his senior by three years, is still active at Göttingen.

Liebig's researches were published in Comptes Rendus of the Paris Academy, in the Journal de Chimie et de Physique, in the Journal de Chimie Médicale, in Poggendorf's Annalen, etc , but particularly in Annalen der Pharmacie, the title of which was in 1840 changed to Annalen der Chemie und Pharmacie and which has been edited by Liebig and Wöhler since 1838, of late years assisted by younger chemists.

Such fruitful and important results of his scientific labors were universally recognized, resulting in his election as honorary member of most learned societies, among them also of the Philadelphia College of Pharmacy.

THE

AMERICAN JOURNAL OF PHARMACY.

JUNE, 1873.

ON INFUSION OF WILD CHERRY BARK.

By J. B. Moore.

The formula of the U. S. Pharmacopœia for the infusion of wild cherry bark affords an unsatisfactory preparation.

The infusion, to be an efficient remedy, should be carefully made, and should represent the tonic as well as the sedative properties of the bark: and, since water extracts but a meagre portion of the bitter tonic principle of the drug, the infusion as made by the officinal process can be said to faithfully represent only the sedative properties. Moreover, when made with water alone as the menstruum, the infusion is a very unstable preparation, liable to spoil, in warm weather especially, in a very short time.

Glycerin is one of the best solvents for the bitter principle of wild cherry bark that we have, and when associated with water forms a menstruum perfectly adapted for extracting the entire medicinal virtues of the bark; and it is with such a menstruum that I propose making the infusion, and would offer the following formula and process, which after repeated trials has proved perfectly satisfactory:

℞. Powd. Wild Cherry Bark, No. 60, ℥ss, troy,
Glycerin, f℥ij,
Water, temp. 86°,
Water, each a sufficient quantity.

Moisten the bark with six fluid-drachms of water, at the temperature of 86°. Allow the mixture to stand for two hours in an air-tight vessel, at about the same temperature. Then pack it firmly in a glass percolator. Mix the glycerin with ten fluidounces of water at the temperature of 86°, and gradually pour the mixture upon the bark, and when it has all passed from the surface continue the percolation with water until one pint of infusion is obtained.

In the above formula I have refrained from mixing glycerin with that portion of the water with which the bark is moistened, lest it might possibly interfere with or retard its reaction upon the bark.

As prepared by the above formula, the infusion is much darker in color than that as made by the officinal process, and much more bitter; the taste of which, however, is modified and rendered more agreeable by the glycerin it contains. The hydrocyanic acid odor is also strongly marked in it.

I think that the formula for this infusion might be still further improved by doubling the strength of the infusion, that is, using one troyounce of bark to the pint of infusion instead of half a troyounce as is now employed. I can see no possible objection to such a change, but can see many reasons why it should be made. It would greatly lessen the bulk of the dose, which is a large draught for a delicate person to swallow. The dose may then be reduced from two or three fluidounces to two or three tablespoonfuls.

In the course of my experiments to test the relative merits of the above formula and process with those of the officinal, I made upon several occasions a sample of the infusion as directed in the above formula, also one by the same process, but doubling the quantity of the bark, and another strictly in accordance with the officinal formula.

The sample on each occasion made by the above formula kept, without apparent change in sensible properties, for about ten days, with the exception of very slight turbidity and a little deposit of resinous or other insoluble matter, which was of no consequence. The characteristic hydrocyanic acid odor, however, remained apparently undiminished for that period, after which I could perceive a gradual loss of this odor, with an increased cloudiness and deposit; while the sample made by the same formula, with double the proportion of the bark (one troyounce instead of half a troyounce to the pint), kept without visible change, beyond a slight cloudiness and a little deposit, for about sixteen days, retaining its characteristic odor and taste but very slightly diminished for that time. But the sample on each occasion, which was made in strict conformity to the officinal formula, with water alone as the menstruum, exhibited in a very short time a cloudiness, which rapidly increased, and the hydrocyanic odor was entirely lost in four or five days, while the infusion became entirely spoiled and unfit for use in less than a week.

These samples were all kept in the same situation in my store room, at a temperature ranging from 60° to 70°. These results show that there can be no question about the advantages in the use of glycerin in the preparation of this infusion, and also illustrate the advantages of increasing the strength of the infusion, as it seems to give increased stability to the preparation.

The glycerin not only contributes to its preservation, but also forms a better and more potent menstruum for the solution of the virtues of the bark, and affords a much more active and efficient preparation. The sweet taste of the glycerin also serves to conceal in a measure the bitterness of the infusion, and renders it more agreeable to the taste. Glycerin itself, possessing alterative, nutrient and demulcent properties, is useful in almost all cases in which the infusion of wild cherry bark would be employed; while in no case can there be any possible objection to its use.

It is a fact well known to all observing pharmacists that the proportion of hydrocyanic acid in all preparations of wild cherry bark gradually diminishes with time, and sooner or later entirely disappears, especially if the medicine is exposed to the light.

This fact alone gives, I think, additional importance to the infusion as a therapeutic agent, which, when carefully and properly made, furnishes a preparation embodying all the medicinal virtues of the bark in a fresh or nascent state, and in an eligible form for administration; and, as the proportion of the menstruum to the bark is so large, it will always, with ordinary care, insure its perfect exhaustion of all that is medicinally desirable.

I am surprised that physicians do not more frequently avail themselves of the use of this preparation; I presume the cause of its being so seldom prescribed is owing to the liability of the officinal infusion to spoil quickly, and the prevailing impression of its inefficacy. If, however, physicians can have this preparation made so that it will keep, and retain its medicinal properties unimpaired for two or three weeks, and prepared in such a manner that it will fully represent the entire active properties of the bark, I have no doubt that it would become a more popular remedy.

I have directed in the above process a two hours' preliminary maceration, instead of an hour as in the officinal. This may, even with advantage, be prolonged to five or six hours, when circumstances will permit, so time will be given for the necessary reactions which develop the sedative properties of the bark to become more complete.

The temperature of the water with which the bark is moistened preparatory to maceration should never be below 86° to 90°, and the maceration should be conducted at about the same temperature, as this temperature serves to promote the reactions referred to above. Yet care must be exercised not to allow the temperature to much exceed that point, otherwise there will be more or less loss of hydrocyanic acid. Attention to this point is of like importance, also, in the manufacture of all preparations of wild cherry bark where it is desirable to secure its full sedative power.

Especially is this necessary in cold weather. In summer the water is usually warm enough, and the temperature of the atmosphere such as to render the resort to artificial warmth unnecessary.

Some pharmacists, when making the syrup of wild cherry bark, after moistening the bark with water place it in the cellar to macerate; but this should not be done, as most cellars are too cold at any season for this purpose. It is also necessary that the maceration be conducted in an air-tight vessel, otherwise the hydrocyanic acid will escape almost as fast as it is generated. There is another precaution, also, that it is well to observe in this matter, and that is to pack the bark rather firmly in the vessel in which it is macerated, as this will tend to confine the acid and prevent its waste.

There are many cases of disease in the treatment of which the physician may wish to combine the properties of tar with those of wild cherry bark; if so, an elegant and valuable combination of this kind may be formed in the following manner:

℞.	Tar, pure, ...	one pint,
	Infusion Wild Cherry Bark, . .	four pints.

To the infusion, in a suitable bottle, or other air-tight vessel, add the tar. Set it aside to macerate for two or three days. Stir the mixture well with a stick, and shake it vigorously frequently during the maceration. Then filter through paper.

The *stirring* directed in the preparation of this compound infusion is an important part of the process, as it breaks up the tar and thus presents a larger surface of it to the action of the solvent, which enables the liquid to more thoroughly and more quickly exhaust the tar of all that is soluble in it; whereas, if the mixture is simply shaken the tar will often remain in an impermeable mass, the interior of which is entirely inaccessible to the menstruum. This same treatment could, I think, be adopted with advantage in making the officinal "Infusum Picis Liquidæ."

When prepared as above directed and filtered, this infusion is quite a handsome preparation, and to those who have not an aversion to the taste of tar it is not an unpleasant one.

Glycerin being a good solvent of the medicinal virtues of tar, this compound infusion possesses the properties of the latter in a high degree, and in my opinion it is superior medicinally to the "Wine of Tar," and may be substituted for it with advantage in almost all pectoral diseases.

It will be found an excellent remedy in chronic pectoral and bronchial affections, and may often be used also with good effects in the treatment of certain diseases of the kidneys and bladder. The physician may at pleasure combine with it any of the usual expectorant, diuretic, anodyne or diaphoretic medicines.

It may be administered in the dose of from one to two tablespoonfuls every two or three hours, as required.

This infusion is not so liable to spoil as the simple infusion of wild cherry bark. Being impregnated with the antiseptic properties of tar, it will keep for a long time unchanged, if kept in a cool, dark place.

In the late revised edition of the U. S. Pharmacopœia, I observe that the Committee of Revision have given some attention to the infusion of wild cherry bark, and have substituted a "fine powder" for the "moderately coarse" one employed in the edition of 1860. This was a judicious change, and I regret that they did not make the same alteration in the formula for the syrup of wild cherry bark. In fact, a "very fine" powder for that preparation would not be at all too fine; while a coarser powder than No. 60 will not yield a satisfactory syrup; for, no matter how firmly packed, the percolation, when a coarser powder than "No. 60" is used, proceeds too rapidly, and the bark is in consequence but imperfectly exhausted.

Philadelphia, March, 1873.

EXTRACTUM PRUNI VIRGINIANÆ FLUIDUM.

By Harry W. Porter.

Abstract from an Inaugural Essay.

The fluid extract of wild cherry made in accordance with the new Pharmacopœia, does not, I believe, represent the bark as fully as that made by the old plan. Percolation and evaporation being necessary in all cases, the objection to the old formula seems to apply to that part—a very essential one—where emulsion of almonds is directed to be added, and then strained and filtered out.

This objection I have attempted to overcome by eliminating an unnecessary ingredient which serves as an impediment, and by reducing the bulk of material in the operation for developing the latent hydrocyanic acid. This is accomplished by depriving the almonds of their fixed oil, which amounts to more than one-half their weight (54 per cent.), and of other matters insoluble in water, amounting in all to nearly three-fourths the weight of the almonds; or, in other words, by extracting from the almonds all that is requisite for developing the hydrocyanic acid represented by the amygdalin of the bark, namely, a nearly pure emulsin.

I prepare a smooth paste of almonds, not necessarily blanched, and mix with it, in the mortar in which it has been beaten, sufficient benzin to make a fluid mass, transfer to a long cylindrical percolator and treat with benzin until the drops falling from the percolator contain no fixed oil.

The powder remaining in the percolator is then turned out, and laid by to dry in a warm place, where the temperature does not exceed 100°, until the odor of benzin has entirely disappeared. One troy-ounce of almonds, when treated in this manner, yielded 160 grains.

I next treat the powder with water by percolation. It is soon exhausted, as the drops from the percolater soon fail to give a precipitate when added to alcohol. A dense solution results, which consists largely of emulsin, and contains small proportions of gum and sugar. This dense aqueous solution is then added to some properly concentrated fluid extract of wild cherry, and put aside for twenty-four hours. It is then filtered, and finally sugar or glycerin added.

This process may seem more troublesome or difficult than the one of the old Pharmacopœia, but such has not been my experience.

The preparation of the emulsin solution can be effected while the percolation of the bark and the evaporation of the tincture is going on, and the solution can be added as soon as the reduction of the tincture is accomplished. The preparation of the emulsin is an easy one, the greatest care to be observed is in the reduction of the almonds to a smooth paste, so that there may be no large pieces left to retain any oil, which might interfere with the subsequent aqueous solution.

The final filtration is easily made, the small portions of emulsin and the gum which are precipitated by the tannin of the fluid extract do not clog the filter in the least appreciable degree. The use of benzin instead of ether is simply a matter of economy. It serves the purpose as well if of good quality, and is invariably kept in the shops.

The formula I have worked by is as follows:

Take of wild cherry bark, in fine powder, sixteen troy-ounces; glycerin, eight fluid-ounces; stronger alcohol and water, of each, a sufficient quantity; sweet almonds, two troy-ounces; benzin, a sufficient quantity; moisten the bark with eight fluid-ounces of alcohol, and pack carefully in a percolator; add alcohol until three pints of tincture is obtained, from this distil two pints and a half of alcohol, mix the residue with twenty fluid-ounces of water, evaporate to twenty-two fluid-ounces. pour into a bottle, and add the solution of emulsin prepared from two troy-ounces of almonds by the process above described. Allow the mixture to stand for twenty-four hours, filter through paper, and add the glycerin.

IS THERE A THIRD ALKALOID IN HYDRASTIS CANADENSIS?

By A. K. Hale.

After removing the berberina from the watery percolate as a hydrochlorate, and precipitating hydrastia by careful neutralization with ammonia, I find that excess of ammonia throws down another precipitate, more resembling berberina than hydrastia, but decidedly different from the former. My investigation upon this question has been as follows, and I should be very glad to receive further information or explanation of the results.

I treated the powdered root of *Hydrastis Canadensis* in a percolator with distilled water until the strength seemed to be exhausted, then I proceeded to remove the berberina as a hydrochlorate by the addition of hydrochloric acid. Removing this precipitate of hydrochlorate of berberina by filtration, I then proceeded to obtain the hydrastia by adding water of ammonia (10 per cent.), until a precipitate ceased to be thrown down. This precipitate I separated by filtration, and dissolved in, and crystallized from, alcohol, when, instead of hydrastia, as the books described it, I found that the characteristic prisms of hydrastia were colored by and intimately mixed with a yellow powder, which I supposed to be berberina that had not been thrown down as a hydrochlorate.

Being thus a little disconcerted at not obtaining the result I hoped for, I made another percolate of the drug, and to the mother liquor of berberina I carefully added water of ammonia (10 per cent.) to the neutral point. The precipitate thus obtained I dissolved in and crystallized from alcohol, which furnished beautiful and well defined prismatic crystals of hydrastia, free from yellow coloring matter at all resembling berberina.

To the neutral mother liquor of hydrastia I now added water of ammonia (10 per cent.) to a strong alkaline reaction. This gave me a yellow precipitate, which I separated, and found to correspond with the yellow powder above mentioned, as accompanying the first attempt to obtain hydrastia, and to be darker in color than berberina and to possess the following reactions. When dissolved in alcohol it has a neutral reaction with a solution of litmus.

Taking corresponding proportions of berberina (designated by "*a*") and the new substance resembling berberina (designated by "*b*"), and applying a few reagents, the following results were obtained:

In cold nitric acid "*b*" is the least soluble, and both form red solutions when the acid is heated. In water, at 60° F., "*b*" is the least soluble; both dissolve in hot water. In hot sulphuric acid, "*a*" gives a yellow solution; "*b*," a reddish-brown solution. In cold solution of caustic potassa, "*a*" is the most soluble. When heated in hydrochloric acid, "*a*" furnishes the darker solution; and when the hot hydrochloric acid solutions are allowed to cool, "*a*" crystallizes while the solution is still warm, giving an abundant crop of bright yellow needles, while "*b*" remains in solution until nearly or quite cold, and then only crystallizes sparingly in darker and larger needles than "*a*." Dissolved in warm water and tested with iodohydrargyrate of potassium, "*a*" gives an abundant yellow precipitate, while the precipitate furnished by "*b*" is less abundant and of a very light yellow, almost straw-color.

Fearing "*b*" might be a modification of "*a*" by the action of ammonia, I subjected "*a*" to the influence of ammonia for several days, but observed no change. Obtained as above described, "*b*" exists in *Hydrastis Canadensis* in less quantity than hydrastia.

The ultimate contents of "*b*" I have not yet had time to determine.

Ann Arbor, Mich., May 10th, 1873.

IODIDE AND BROMIDE OF AMMONIUM.

By Charles Rice.

The process adopted in the last Pharmacopœia for the preparation of iodide of ammonium was published several years ago in the Proceedings of the American Pharmaceutical Association (1866), and in the American Journal of Pharmacy (1867), and no doubt yields an excellent product, although the latter is contaminated with a minute proportion of sulphate of potassa. But the quantities of iodide of potassium and of sulphate of ammonia, which the Pharmacopœia directs to be used, are not correct. Four troy-ounces of iodide of potassium, combining in equivalent proportion with sulphate of ammonia—supposing the latter to contain no water of crystallization—require more than one troy-ounce of the latter, as the following diagram shows:

$KI\ (166) + NH_4O,SO_3(66) = KO,SO_3(87) + NH_4I\ (145)$, hence 1920 grs. of iodide of potassium require for complete decomposition 764 grs. of sulphate of ammonia. Now, since it is safer to employ an excess of sulphate of ammonia than of iodide of potassium, the quantity of the former should not be less than 867 grains, which would make allowance for an additional equivalent of water in the sulphate, and any excess of the latter would be thrown down along with sulphate of potassa by alcohol.

As regards the process for preparing bromide of ammonium, I almost regret that the Committee did not adopt the same plan here as in the case of the iodide. It is true that the product will not contain any foreign salt, such as sulphate, and that the only drawback in this process is the not unfrequent elimination of bromine and hydrobromic acid; but I am inclined to think the advantage is on the side of the other process, which yields a product, never exhibiting any signs of decomposition, although containing a very small amount of sulphate of potassa, and being all that can be desired by the photographer as well as by the pharmacist. I have prepared several hundred pounds during a number of years past by the sulphate of ammonia process, and have never found the least trace of decomposition, while the same salt prepared by the other (now officinal) process has not unfrequently liberated free bromine and turned acid. It is a curious fact that iodides and bromides, especially the former, prepared by the intervention of iron, are rather prone to develop in the course of time, free hydracids and halogens, unless the salt has been exposed to a high degree of temperature, which is, of course, inadmissible in the case of ammonium salts. One explanation of this fact is suggested by the results observed in following another well known process, formerly much used, and even yet practised, in the preparation of iodides and bromides, namely, to convert the I and Br into HI and HBr by means of HS, either in the presence of the base or its carbonate, or previous to coming in contact therewith. This process yields a product, in the case of I, of very feeble stability, and obstinately retaining traces of sulphur, which it is next to impossible to get rid of. In the case of bromine, the durability is longer, but decomposition frequently ensues after some time. The presence of sulphur, even in most minute proportions, appears to lead to such a result, and traces of it, present in the iron employed, are, I believe, the cause of like effects in the first-mentioned process. Photographers can make no use whatever of such iodides and bromides; the faint trace of sulphur still remaining produces at once a peculiar fogginess and spots upon the film, and there is scarcely a more sensitive test for the detection of minute traces of sulphur than the silvered collodion-film.

I annex a working formula for bromide of ammonium.

Dissolve 4 troy-ounces of bromide of potassium in 6 fluid-ounces of boiling water, and 3 troy-ounces of sulphate of ammonia in 4½ fluid-ounces of boiling water. Mix the solutions while hot, and allow to cool. Then add 1½ ounces of alcohol, and set it aside for twenty-four hours. Pour off the clear liquid, wash the precipitate with a small quantity of a mixture of 1 part alcohol and 4 parts water, and concentrate to the point of crystallization. In working upon a larger scale, it is advisable to redissolve the first crop of crystals of bromide of ammonium in a small quantity of very cold water, and allowing as short a time as possible for the solution. The greater part of the accompanying sulphate of potassa, which has crystallized out at the same time, will remain undissolved at first, and may be removed.

when the solution may be again concentrated, until a pellicle forms. The successive crops of crystals are first drained, then dried on blotting paper laid upon porous bricks with a very gentle heat.

New York, May 13, 1873.

ON THE YELLOW COLOR OF THE BARK OF PRINOS VERTICILLATA.

By William J. Lerch.

From the author's inaugural essay we extract the following experiments, undertaken with the view of ascertaining whether the yellow color of the bark is due to berberina; the probability of which had been suggested by Professor Maisch.

A decoction was made by boiling sixteen troy ounces of the bark, coarsely powdered, repeatedly with water; on mixing the solutions and filtering I obtained a dark yellow colored liquid, with a strong odor and taste of the drug, and very prone to froth. This decoction I evaporated to the consistence of an extract, which I digested in hot alcohol in the proportion of half a pint to the pound of bark, and again filtered. To this I added one-fourth of its bulk of water and recovered most of the alcohol by distillation; to the remaining liquid, while still hot, I added sulphuric acid in slight excess and set it aside for several days, hoping to obtain crystals of sulphate of berberina, but failed.

I then repeated the above experiment twice, using muriatic acid and nitric successively, but with similar results.

I then exhausted a portion of the bark by boiling it with hydrate of lime and water several times, mixed the decoctions filtered, precipitated the lime with sulphate of zinc and again filtered, evaporated this to the consistence of an extract, treated it with alcohol, filtered, evaporated the alcoholic solution, treated this with boiling water; on cooling I failed to get any crystals. I then added to this sulphuric acid, but with the same result.

I then exhausted another portion of bark with alcohol, distilled off most of the alcohol, evaporated the residue to dryness, treated this with boiling water, filtered, and added muriatic acid in slight excess, and set aside as before, but again failed to get any crystals.

The above experiments were all repeated several times, with similar results. The bark used was a very fine article, collected late in the fall, and of the fourth year's growth.

ON THE TASTELESS IODIDE AND CHLORIDE OF IRON.*

New York, April 18th, 1873.

Editor American Journal of Pharmacy:

Dear Sir:—If you ask me what kind of combination citrate of potassa can form with sesqui-iodide of iron, I will answer frankly that I cannot say with certitude; it is probably a combination similar to the medicinal pyrophosphate of iron or the green scales of sesquiphosphate of iron and citrate of potassa I sent you last year. That they form a combination does not admit of any doubt, for the physical and chemical changes are such as would not be presented by a simple mixture. But, be the combination what it may, I believe the new salt represents exactly the results of what happens in the stomach when protoiodide of iron is administered. Protoiodide of iron cannot be absorbed as it is, for no protosalt of iron is ever found in the animal system; when ingested into the stomach it must change in whole or in part into sesqui-iodide, which, combining with the citrates, tartrates, oxalates, malates or lactates, etc., always present in human food, becomes ready for absorption. The balance of the iodide of iron is probably eliminated, like all unabsorbed substances (I leave acetates purposely out of the list, for acetic acid is monobasic, and this class of compounds seem to be limited to the salts of polybasic vegetable acids). This explains also why protoiodide of iron is best administered just before a meal; for the food supplies the stomach with both the oxygen and the vegetable salts necessary for the digestion of the ferrous compound.

The new iodide of iron, according to this theory, ought to be more effective and more uniformly so than the protoiodide, for it comes all ready for absorption, while the old salt, being absorbed only with the help of other variable substances, will vary more or less in its effects, besides interfering with the natural functions of the stomach.

Experiments made by Dr. Lalanne, of this city, have confirmed this view and have served to determine the medicinal dose of the new combination. This was necessary on account of the entirely different character of the new and the old form of iodide of iron. It has been found that from one to three grains of the salt have the same medicinal effect as an average dose of the U. S. Pharmacopœia syrup of protoiodide. As the new salt contains about 42 per cent. of iodine and 9 per cent. of metallic iron, this shows that its effects are proportionally greater than those obtained from the same substances administered as protoiodide.

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* The above portion of a private letter touches upon several interesting and important points, and is published with the consent of the author upon the request of the Editor of the *American Journal of Pharmacy*.

Its medical properties are, otherwise, precisely the same as those of the officinal iodide of iron, and its administration has always been followed by the most gratifying results; but it is not my province to speak of this, except to mention that it has found great favor among children and female patients, on account of its relatively pleasant taste and because it never blackens their teeth.

Much of this applies also to the tasteless tincture of muriate of iron. The officinal tincture is still more injurious to the teeth than the syrup of protoiodide of iron; it not merely blackens them, but destroys them when used long enough. I have heard some dentists speak very strongly on the subject. The tincture I send you contains the same proportion of iron as the tinct. ferri sesquichloridi, U. S. P. I left the dose the same as that of the officinal preparation, but I have no doubt that experiments now being made will warrant a reduction in the dose.

In regard to the quantity of citric acid needed for one fluid-ounce of tincture of muriate of iron, I have found from recent experiments that it requires from 90 to 95 grains of citric acid neutralized by 180 to 190 grains of crystallized carbonate of soda to transform that quantity into the tasteless compound. It seems singular at first sight that the more acid is the solution of muriate of iron, the more citric acid it requires; but it is easy to account for that apparent anomaly: for, any excess of muriatic acid decomposing a corresponding quantity of citrate of soda, more of that salt is needed in proportion to the free acid present.

J. Creuse.

New York, May 20, 1873.

ON THE FLOWERS OF SOLIDAGO BICOLOR.

By Adam Conrath.

From an Inaugural Essay.

The flowers which were used for the experiments hereafter to be noticed were collected in the vicinity of Germantown in the forepart of September. After being carefully dried in the shade they possessed an agreeable aromatic odor, and a slight bitterish taste.

An infusion made with boiling water was destitute of any bitterness, and upon examination of the flowers so extracted, they were found to be still bitter. A small portion was next treated with diluted alcohol, which proved to extract all its sensible properties.

Three tinctures were next made ; one with ether, one with alcohol and one with diluted alcohol. On evaporating the diluted alcohol tincture to the consistency of a solid extract, it was found to weigh 17 per cent. of the weight of flowers. The alcoholic and ethereal tinctures yielded decidedly less extract, whereupon the flowers extracted with these menstrua were subjected to percolation with cold water, which, upon evaporation to the consistency of a solid extract, yielded from flowers previously extracted with ether 13·8 per cent. of their original weight, while those previously extracted with alcohol yielded 12 per cent. These aqueous extracts were very tenacious, of a honey-like odor and peculiar malt-like taste. Solutions of the aqueous extracts gave precipitates with gelatin, basic and neutral acetate of lead, a black coloration with ferric salts, and reduced the cupric oxide in Trommer's test, indicating the presence of glucose and tannin.

I endeavored to purify the grape sugar as much as possible by repeatedly dissolving in alcohol and precipitating with ether, and after this boiling with animal charcoal; it, however, retained a light brown color.

The extract obtained from the diluted alcohol tincture had a bitter and somewhat acrid taste. It was treated with hot water acidulated with muriatic acid and filtered, leaving a resinous residue. The filtrate was supersaturated with magnesia, boiled and set aside for twenty-four hours. It was then filtered, the undissolved residue washed with cold water and dried. The dry residue, digested in hot alcohol, brought on a filter and washed with the same menstruum, yielded a clear filtrate having no marked taste. After standing several days no change occurred. It was now evaporated to a small bulk, when it assumed a yellowish tint, and upon standing became turbid. Lastly, it was carefully evaporated to dryness on a water-bath, leaving a resin-like film on the bottom of the beaker. Cold water partially dissolved this, while acidulated water had but little effect upon the residue.

Both these solutions were tested with iodohydrargyrate of potassium, after being duly acidulated with HCl. without any immediate effect; on standing, however, a resinous precipitate occurred, the liquid at the same time being decolorized. Judging from this behavior, I came to the conclusion that there was no alkaloid present, and the substance precipitated by the magnesia and subsequently dissolved by the alcohol was merely resin.

The alcoholic tincture was next evaporated to a small bulk after having recovered most of the alcohol by distillation. On cooling, the resinous portion separated from the aqueous liquid. More water was now added, and the whole brought on a filter and washed. The residue consisted of a resin partially soluble in ether; the greater part was little affected by carbon bisulphide, but was readily soluble in alcohol. This latter portion amounted to 2·13 per cent. of flowers employed. The portion soluble in ether was only one-fifth of this, making the amount of resin contained in the flowers and soluble in ether and alcohol 2·56 per cent.

To this resin is due what bitterness the flowers possess. When isolated it has a sharp, bitter and acrid taste, and a peculiar disagreeable odor. The ethereal tincture yielded on evaporation mostly chlorophyll.

The flowers yielded on distillation a milky distillate, which, on standing, separated globules of oil, the quantity, however, being very small. The distillate was successively treated with ether in order to dissolve out the oil, and the solution so obtained left to spontaneous evaporation. A minute portion of oil was thus obtained.

It was of a yellow color, lighter than water, and had a pleasant aromatic odor. The quantity was so small that further experiments could not be made with it. In regard to its odor, I would state that it had no resemblance to any of the volatile oils known to me and generally kept in drug stores.

ON THE ROOT OF EUPHORBIA IPECACUANHA.

By Christopher Petzelt.

Abstract from an Inaugural Essay.

The root, which is the officinal portion, is, according to Dr. Barton. equally efficacious at whatever period collected.

The root used in the following experiments was gathered by me on the third of August, in the vicinity of Camden, N. J.

It was first reduced to powder, this macerated with ether for six days, then transferred to a percolator and completely exhausted with ether; this percolate was set aside for future experiments. The residue was transferred to a capsule, and set in a warm place to facilitate the evaporation of the remaining ether.

This residue was macerated with 95 per cent. alcohol for four days, then in a percolator exhausted with alcohol, the percolate set aside, the residue placed in an evaporating-dish, and by means of a sand-bath the remaining alcohol driven off.

The powdered root which had been completely extracted by ether and alcohol was digested in water, acidulated with hydrochloric acid, at a temperature of eighty degrees, for eight days. It was then strained, filtered, and the filtrate set aside for future investigation.

Experiment 1. The clear ethereal tincture was allowed to evaporate spontaneously. A soft yellow mass was left behind, which was dissolved in benzin, allowed to evaporate spontaneously, and found to consist of wax and fixed oil.

Experiment 2. The clear alcoholic tincture was evaporated by a water-bath to a small bulk, set aside for three days, but no change taking place in its appearance, it was evaporated by a steam bath. A dark-brown soft resinous mass resulted, the taste of which is at first feeble, but when kept on the tongue for a short time, or brought in contact with the palate, has a nauseous and very pungent taste. When a half grain of this resinous matter was swallowed it acted as a cathartic, producing watery stools; in doses of 1½ or 2 grains it produced nausea and vomiting.

It appears, according to a statement of the late Dr. Hewson, of Philadelphia, that this emetic was the subject of an inaugural essay by Dr. Royal, and that experiments conducted with it among the convicts in the Walnut Street Prison proved it to be advantageously available for all the purposes of an emetic.

Experiment 3. This resinous matter is insoluble in ether and benzin. When treated with acidulated water until completely exhausted, the solution gave no precipitate with iodohydrargyrate of potassium or tannin. When redissolved in alcohol it is copiously precipitated on addition of a solution of subacetate of lead.

Experiment 4. The acidulated aqueous extract of the root, previously exhausted by ether and alcohol, contained salts, among them sulphate of calcium.

Experiment 5. A portion of the root was boiled in water, and the decoction strained, being too thick and gummy to filter through paper. It afforded no precipitate with gelatin, was colored intensely blue by iodine, was not affected by sesquichloride of iron, but copiously precipitated by subacetate of lead.

Experiment 6. A decoction of the root contains glucose, as it readily reduces oxide of copper in Trommer's test.

My experiments indicate that the emetic and cathartic properties of the root of *Euphorbia ipecacuanha* are solely due to its resin.

This resin may be prepared by reducing a given quantity of the root to a moderately fine powder, and exhausting it in the usual manner with alcohol, distilling off this menstruum, adding the residue to water, washing and drying the precipitate, which is soft and of a yellowish color, partly soluble in ether; and the residue, when dissolved in the officinal solution of potassa, is, like the resin of jalap, not precipitated on the addition of dilute muriatic acid in excess.

The constituents found in the root of *Euphorbia ipecacuanha* are resin, fixed oil, wax, starch, glucose and inorganic salts.

SUPPOSITORIES.

By Wm. B. Addington, Norfolk, Va.

As summer is now approaching, and suppositories seem to be more used then, I will give the public the benefit of my manipulation, which I think will set at rest this vexing subject, and save the breaking of knuckles and the third commandment in future. My improvement consists simply in lining each half of the moulds with tinfoil. Get the full impression of the mould in the foil by means of a smooth stick the shape of the mould, then close the moulds; this will line the moulds smoothly. The materials are then prepared and melted in the manner directed by the U. S. Pharmacopœia, and poured into the tinfoil-lined moulds. In a few minutes the suppositories are solid, and the foil is removed without the least trouble. I do not think tinfoil is incompatible with the substances generally prescribed in suppository form. I think those who try this process will admit its advantage over those in use.

SOLUTION OF ISINGLASS IN WATER.

By C. Carroll Meyer.

From an Inaugural Essay.

One hundred grains each of the following kinds, American ribbon, American sheet, Russian and Prussian(?) isinglass were treated separately, first with f℥viii of water to soften, then f℥viii more of water were added and boiled until all soluble matter was extracted, then filtered, and the following table will show the solubility of the different kinds experimented with:

Isinglass.	Quantity used.	Soluble.	Insoluble.
American strip, .	100 grs.	70 grs.	30 grs.
" sheet, .	100 "	82 "	18 "
Russian, . .	100 "	88 "	12 "
Prussian, . .	100 "	80 "	20 "

From the foregoing experiments it will be seen that the Russian is the most soluble and the American strip the least soluble.

The bladder of a hake fish, weighing ℥xv, was washed with water to remove salt, and boiled with sufficient water until all soluble matter was obtained, then filtered, and found to contain ℥i of insoluble matter.

As aqueous solutions are prone to decompose, experiments were made to see if anything would arrest decomposition, and glycerin was found to answer very well in the proportion of one part glycerin to fifteen parts solution of isinglass. Solutions to which glycerin was added kept sweet and were quite palatable, while those to which no glycerin had been added soon decomposed, and became quite offensive to both taste and smell.

AN ADULTERATION OF CREAM OF TARTAR.

By George W. Kennedy.

A sample of cream of tartar was handed me by a merchant of our town, with the request that I should examine it and give my opinion as to its purity. I tasted it and at once discovered that it was an adulterated article. The taste was decidedly acid and astringent; in appearance it was rather lumpy, resembling cream of tartar that had been wet and dried, and in color yellowish white. I treated it with ammonia, and found a large per cent. was insoluble. This ammoniacal solution was treated with chloride of barium, whereby a precipitate was obtained which was not entirely soluble in boiling nitric acid; the insoluble portion contained sulphuric acid, which no doubt had been united with aluminum, in the form of common alum.

The insoluble portion of treatment No. 1 was next treated with acetic acid, which dissolved part of the deposit. Hydrochloric acid was then added to the acetic solution, which made a clear solution. Acetate of sodium was added to get rid of the hydrochloric acid and replace it by free acetic acid. This acetic solution was treated with oxalate of ammonium, yielding a precipitate of oxalate of calcium, which was insoluble in acetic acid, but readily soluble in hydrochloric acid; a second portion of the acetic acid solution was acted on with ammonia, which caused a gelatinous white precipitate, proving the presence of aluminum. The residue left after treatment with ammonia and acetic acid, was treated with hydrochloric acid, results in solution of chloride of aluminum and tartrate of calcium, with a small residue. This residue was treated with tincture of iodine, which instantly produced a blue color characteristic of iodide of amylum, and by drying and burning, a mere trace of ash was left.

I might state here that the original cream of tartar, when treated with carbonate of potassium, evolved ammonia, recognized by its odor, also by browning turmeric proper, and giving white clouds with acetic acid. From the above process adopted, the following is the result:—

I. Treatment with ammonia:—

  1. Bitartrate of potassium is dissolved; also sulphuric acid (of alum), removed as sulphate of ammonium.
  2. Precipitate contains starch, tartrate of calcium, and hydrate of aluminum.

II. Treatment of 2 with acetic acid:—

  3. Solution containing aluminum and tartrate of calcium.
  4. Residue: starch, tart. of calcium and hydrate of aluminum.

III. Treatment of 4 with HCl., results—

  5. In solution all chloride of aluminum and tartrate of calcium.
  6. Residue: starch.

IV. Addition of acetate of sodium to 5:—

  7. The solution remains clear, but is precipitated by ammonia,

and by oxalate of ammonium—this proving it to be identical with No. 3.

The cream of tartar was adulterated with about five to six per cent. of tartrate of calcium, eight per cent. sulphate of aluminum and ammonium, and two per cent. of starch.

Pottsville, Pa., April, 1873.

ON NON-GELATINIZING TINCTURE OF KINO.

Editor American Journal of Pharmacy :

The gelatinization of tincture of kino is a universal annoyance among pharmacists, and to make this tincture so that it would not lose its astringent properties, or, on long standing, gelatinize, is quite a desideratum. I here supply you with a formula that has been well tried and has proven good.

Take of

Kino in moderately coarse powder,	
Dry sand, ...	*aa* ℥iss.
Carbonate magnesia, ...	℥j.

Rub in a mortar and saturate with diluted alcohol for one hour ; then percolate by pouring one and a half pints diluted alcohol on the mass ; when one pint of tincture is obtained, filter and cork tightly.

L. Myers Connor.

Dallas, Texas, May, 1873.

[Note by the Editor.—It is possible that the pectinacious matter is entirely removed by using carbonate of magnesium, as suggested by our correspondent ; but is the kinotannic acid not likewise removed by the same agent, either wholly or in part? At a boiling temperature, at least, according to Gerding, the whole of this tannin is precipitated by carbonate of magnesium, while the liquid still retains a deep red color.]

SELECTED FORMULAS FROM PHARMACOPŒA GERMANICA.

By the Editor.

(Continued from page 221 of last number.)

Sapo terebinthinatus, s. Balsamum vitæ externum. Powdered Castile soap, oil of turpentine, of each 6 p. ; purified carbonate of potassium, 1 part. Beat them together into a uniform mass of the consistence of an ointment.

Serum Lactis (*dulce*). The whey obtained by warming a mixture of 200 parts of fresh milk and 1 p. liquid rennet to 35° or 40° C., and straining.

Serum Lactis acidum. 100 parts milk and 1 part cream of tartar heated to boiling, and strained.

Serum Lactis aluminatum and *tamarindinatum* are made in the same manner, substituting for the cream of tartar 1 part of alum, or 4 parts of tamarinds.

Sinapismus. Equal parts of water and ground black mustard seed.

Species aromaticæ. Two parts each of peppermint, rosemary, wild thyme, marjoram and lavender flowers, and one part each of cloves and cubebs are separately cut or bruised, freed from the fine powder, and mixed.

Species ad decoctum Lignorum. Guaiacum, 4 parts; burdock, thorny rest harrow root (*Ononis spinosa*) of each 2 parts; Russian liquorice root, sassafras root, of each 1 part.

Species emollientes. Marshmallow leaves, common mallow leaves, melilot, German chamomile flowers, flaxseed, all in coarse powder, equal parts.

Species ad gargarisma. Marshmallow leaves, common mallow leaves, elder flowers, equal parts.

Species laxantes St. Germain. 16 parts of Alexandria senna, previously exhausted with four times their weight of alcohol; 10 parts of elder flowers; 5 parts each of fennel and anise; when dispensing, add to this 3 parts of cream of tartar.

Species pectorales s. Spec. ad infusum pectorale. Pectoral tea, breast tea. Marshmallow root, 8 p.; Russian liquorice root, 3 p.; orris root, 1 p.; coltsfoot leaves, 4 p.; mullein flowers, 2 p.; star-anise, 2 p.

Species pectorales cum fructibus. 16 parts of breast tea; 6 p. St. John's bread; 4 p. pearl barley and 3 parts of figs.

Spiritus æthereus. Hoffmann's anodyne differs from that of the U. S. Pharmacopœia mainly in leaving out the heavy oil of wine; it is simply a mixture of 1 part of ether and 3 parts of alcohol.

Spiritus Ætheris chlorati, s. Salis dulcis, s. muriatico-æthereus. 6

parts of crude muriatic acid and 24 parts of alcohol are mixed in a large retort with sufficient black oxide of manganese in small pieces, and 25 parts obtained by distillation. The distillate is rectified over burned lime until 21 parts have been obtained. Spec. grav. 0·838 to 0·842.

Spiritus Angelicæ compositus, s. Spir. theriacalis. 16 parts angelica root; 4 p. valerian and 4 p. juniper berries are macerated for twenty-four hours in 75 p. alcohol and 125 p. water; then distil 100 parts and dissolve in the distillate 2 parts of camphor.

Spiritus camphoratus is weaker in alcohol and camphor than the corresponding preparation of the U. S. Pharmacopœia; the proportions are camphor, 1 p.; alcohol, 7 p.; distilled water, 2 parts.

Spiritus Cochleariæ. 8 p. fresh flowering scurvy grass; 3 p. alcohol and 3 p. water; distil 4 parts.

Spiritus Formicarum. 10 p. recently collected ants; 15 p. each of alcohol and water; macerate for two days and distil 20 parts.

Spiritus Juniperi. 5 parts bruised juniper berries; 15 p. each of alcohol and water; macerate for twenty-four hours and distil 20 parts.

By the same proportions and process are prepared *Spiritus Lavandulæ, Spir. Rosmarini* (*s. Anthos*) and *Spir. Serpylli.*

Spiritus Melissæ compositus. Lemon balm, 14 p.; lemon peel, 12 p.; coriander and nutmeg, of each, 6 p.; cinnamon and cloves, each 3 p.; alcohol, 150 p.; water, 250 p.; distil 200 parts.

Spiritus Menthæ crispæ (and *M. piperitæ*) *Anglicus.* 1 p. of the volatile oil dissolved in 9 parts of alcohol. These are of the same strength as the spirit of peppermint of the *Brit. Pharm.*, 1864; that of the *Brit. Pharm.* of 1867 is one-fifth, and that of the U. S. Pharmacopœia about two-thirds the strength.

Spiritus saponatus. Castile soap, 1 p.; alcohol, 3 p.; rose water, 2 parts. Dissolve.

Succus liquiritiæ depuratus, s. Extr. Glycyrrhizæ depuratum. Liquorice and washed straw are packed in alternate layers into a suitable vessel, cold water is added, and after thirty-six hours drawn off. The maceration is repeated, and the clear liquid evaporated to the consistence of an extract.

Syrupus Althææ. Macerate 1 part of washed marshmallow root in 20 parts of distilled water for two hours; strain without expression and dissolve in 15 parts of the colature 24 p. of sugar.

Syrupus Croci. 1 p. saffron is macerated in 24 p. white wine for thirty-six hours, strained, and 36 p. sugar added to the liquid.

Syrupus Ferri oxydati solubilis. The moist mass obtained in preparing the soluble saccharated oxide of iron (see page 161) is digested with the sugar in a water-bath for two hours, and the loss from evaporation made up by the addition of water; when cold, enough simple syrup is added to make the whole weigh 300 parts. The syrup contains one per cent. of iron, has a slightly ferruginous taste and is not precipitated on the addition of five times its quantity of water.

Syrupus Liquiritiæ s. Glycyrrhizæ. 4 p. Russian liquorice root are macerated over night in 18 p. water. The expressed and strained liquid is boiled up once and evaporated until, after cooling and filtering, 7 parts of liquid are obtained, in which 12 parts each of white sugar and honey are dissolved.

Syrupus Rhei. 12 p. cut rhubarb; 3 p. cinnamon; 1 p. carbonate of potassium; 100 p. distilled water. Macerate over night, strain and filter. In 80 parts of the filtrate dissolve 144 parts of sugar.

Syrupus Sarsaparillæ compositus. Cut sarsaparilla, 24 p.; guaiacum wood, sassafras root, China root, of each 16 p.; brown cinchona, 8 p.; anise, 3 p.; hot water, 250 parts. Digest for several hours, express, filter, evaporate to 80 parts and dissolve therein 130 parts of sugar.

Syrupus opiatus. Extract of opium, 1 p.. Dissolve in a little white wine and add to 1000 parts of simple syrup.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

The detection of atropia by Pfeiffer and Herbst's test (agreeable odor of flowers developed on adding atropia to a heated mixture of bichromate of potassium or molybdate of ammonium and sulphuric acid, adding some water), requires dexterous manipulation. H. Brunner succeeds without difficulty by placing a little atropia upon a few crystals of chromic acid in a porcelain dish and heating slightly until the beginning reduction to chromic oxide is shown by the green color.—*Ber. d. d. Chem. Ges.*, 1873, 98.

Specific gravities of mixtures of glycerin and water.—

Specific gravity.	Water, per cent.	Specific gravity.	Water, per cent.	Specific gravity.	Water, per cent.
1·267	0	1·212	17	1·161	34
1·264	1	1·209	18	1·159	35
1·260	2	1·206	19	1·156	36
1·257	3	1·203	20	1·153	37
1·254	4	1·200	21	1·150	38
1·250	5	1·197	22	1·147	39
1·247	6	1·194	23	1·145	40
1·244	7	1·191	24	1·142	41
1·240	8	1·188	25	1·139	42
1·237	9	1·185	26	1·136	43
1·234	10	1·182	27	1·134	44
1·231	11	1·179	28	1·131	45
1·228	12	1·176	29	1·128	46
1·224	13	1·173	30	1·126	47
1·221	14	1·170	31	1·123	48
1·218	15	1·167	32	1·120	49
1·215	16	1·164	33	1·118	50

—Schweikert, in *Zeitschr. Oesterr. Apoth. Ver.*, 1873, *No.* 13.

Tobias Venetian liniment consists, according to the "Industrie Blætter," of 5 parts ammonia water, 2 parts camphor, 5 parts tincture of capsicum, 30 parts alcohol and 10 parts of water.

The detection of digitalin in forensic analysis is connected with great difficulties. By the method of Stas and Otto the acid ethereal solution yields the digitalin as a resinous mass, and a small portion enters into the alkaline solution. Obtained from the latter it cannot be distinguished from delphinia by the reactions with phosphoric acid or with sulphuric acid and bromine water. Obtained from the former solution it will, in rare cases only, yield the red coloration with H_2SO_4 and bromine water. H. Brunner, therefore, suggests to dissolve the residue in water, add some dilute solution of bile, and then concentrated H_2SO_4 until the liquid assumes the beautiful red color of Pettenkofer's test for sugar, the latter compound being separated from the digitalin by the acid. Other glucosides have the same behavior, but the author thinks this reaction, in connection with the physiological action, sufficient proof of its presence.—*Ber. d. d. Chem. Ges.*, 1873, 96.

Action of sulphuric acid upon chloral.—J. Grabowski observes that chloral in contact with fuming sulphuric acid is, after a while, but with strongly fuming acid, instantly converted into a white crystalline mass, of the composition $C_8H_6Cl_{12}O_{11}S_2$, which may be obtained in needles by crystallizing from ether. Alcohol dissolves the compound readily, splitting it into sulphuric acid and chloral alcoholate. Warm water, particularly in the presence of potassa, yields sulphuric acid, chloral and decomposition products.

The product obtained by conducting the vapors of fusing sulphuric acid into chloral has a different composition, crystallizes from alcohol, but decomposes with warm water and potassa.—*Ibid.*, 225.

The alkaloids of the Cinchona barks.—An important paper reviewing the entire literature on this subject, and containing the investigations of the author, is published by O. Hesse, in *Annalen der Chemie und Pharmacie*, clxvi, 217–278. He comes to the conclusion that the existence of the following cinchona alkaloids may be considered as having been definitely established: quinia, cinchonidia, cinchonia, paricina, quinamina, paytina and conchinia. The first three of these alkaloids are met with in commerce; conchinia (Pasteur's quinidia), however, is rarely found in commerce, except by its name merely. Owing to the confusion existing in consequence of different alkaloids and mixtures of alkaloids having received this name, the author adheres to the name conchinia, first proposed by him, although he fully agrees with Howard that it is closely related to cinchonia, and ought to have been named cinchonidia, while the present cinchonidia, being naturally related to quinia, ought to have received the name of quinidia. Quinamina, paytina and conchinia appear to form a group, and to pass into each other under the influence of cellular vitality. Paricina is distinct from bebeerina, the former being readily soluble in petroleum ether, and fusing at 116° C., while bebeerina is nearly insoluble in that menstruum, and fuses at about 200° C.

The author has never met with aricina, discovered in 1829 by Pelletier and Coriol and by Leverköhn, and which was by Bouchardat and Winckler, in 1839, declared to be identical with cusconina and with Manzini's cinchovatina. Delondre, however, and Howard have found in the bark examined by the former chemists, merely quinia and cinchonia; and Kerner observed a commercial aricina to be cinchonidia and his quinidia.

Origin of frankincense.—J. B. Batka stated at the last meeting of German naturalists and physicians, that the commercial olibanum is not obtained from *Boswellia glabra, serrata* or *papyrifera*, but, according to Birdwood, from *B. Carteri*, which, in Soumali, is called mohr madow, and from *B. Bhau* (dajana mohr add), and *B. Freriana* (yegaar), all growing upon lime rocks in Soumali, the first one also in Hadramout. These statements have been corroborated from Aden by Baron Maltzahn.—*Buchner's N. Repert.*, 175–177.

Origin of China root.—Dr. O. T. Sandahl endeavors to prove that China root is in reality a tuber, although it is destitute of the so-called eyes. These tubers are not obtained from the uncertain species *Smilax China*, Lin., but from *Sm. glabra*, Roxb., as was lately proven by Dr. Hance, who received a living plant, with the subterraneous parts attached, from Mr. Bowra, thus confirming the supposition of Roxburgh, expressed in Vol. iii, 192, of his Flora indica. Dr. Hance also calls attention to the fact that in all countries the roots, &c., of various species of *Smilax* are held in high repute for their alterative, diuretic and diaphoretic virtues, and argues from this that sarsaparilla and other smilaceæ may not be as ineffective as many physicians suppose.—*N. Jahrb. f. Pharm.*, 1872, *Feb.*, *from Nordiskt Medic. Arkiv*, IV.

Extract of malt.—L. W. Jassoy gives the following directions for preparing a malt extract superior to that of the German Pharmacopœia: Coarsely ground malt is macerated for three hours with its own weight of cold water, and then digested for one hour at a temperature not exceeding 65° C. (150° F.) After straining the liquid through a sieve, the residue is boiled for fifteen minutes with triple its quantity of water, allowed to cool to about 70° C. (160° F.), strained, and the two liquids mixed. The first colature contains much active diastase, the second a large quantity of starch, which, after mixing at 50–56° C., is readily converted into sugar. On evaporating with slow boiling, the dirty scum separates albuminous matters, and the clear filtrate yields, on evaporation, an excellent extract, equal to from 75 to 85 per cent. of the malt.—*N. Jahrb. f. Pharm.*, 1873, *March.*

Nitrate of potassium in Amarantus Blitum.—Boutin has obtained from the dry plant 8 per cent. carbonate, corresponding to 11·68 per cent. nitrate of potassium, the insoluble portion of the ashes consist of lime, iron, alumina and silica. If cultivated in good soil 8·100 to 10·000 kilograms of the plant might be obtained per hectare, corresponding to 400 to 500 kilograms of potassa.—*Journ. de Pharm. et de Chim.*, 1873, *May.*

Density of absolute alcohols.—Is. Pierre has determined the specific gravities as follows:

Ethylic alcohol,	0·815 at 0° C.;	0·80214 at 15° C.
Butylic “	0·817 “	0·806 “
Propylic “	0·8198 “	0·80825 “
Amylic “	0·8253 “	0·8146 “

—*Ibid.*

*Distilled orange-flower water.**—L. Malenfant observed that fresh orange flowers, mixed with cold water, yield, on distillation over the naked fire, a milky water, possessing a somewhat empyreumatic odor and a strong, somewhat acrid taste. Kept for twelve or eighteen months in glass vessels covered with parchment, it loses its empyreuma, and after filtering has an agreeable odor and taste.

If the flowers are mixed with boiling water and immediately distilled the water is limpid, and gradually separates some thick oil of a brownish color; the water has odor and taste of the flowers, but complicated with a still smell (*goût de feu*), which it loses after long keeping; it seems to alter less rapidly than that obtained by the former process.

Distilled by steam a limpid water of a pure odor and taste is at once obtained, free from empyreuma; it may be at once used, and keeps better in the light than when obtained by the two former processes.—*L'Union Pharm.*, 1873, *Feb.*

ON THE USE OF DRY-POWDERED BLOOD.

By Dr. de Pascale, of Nice.

Several years ago I published from my experience and medical practice, some observations on the very beneficial effect of warm blood taken the moment when extracted from the calf or ox, killed for general domestic use.

I mentioned at that time the cases of three invalids, not English, suffering from hæmoptysis, in whom tubercles were diagnosticated, who derived great benefit from that treatment. The quantity of blood lost by one of the above-mentioned invalids was enormous; but his perseverance for two years or more in drinking daily the blood, made him well and healthy. At this present time he is walking about Nice, or attending to the business of his large establishment.

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* See also *Amer. Jour. Pharm.*, 1872, 426 and 473.

I do not wish to dwell upon the great improvement in my own general health after drinking the warm blood for about a month. One of the English doctors practising in this place had the opportunity of verifying my improvement, and the experiment which I made, when in a state of general weakness and pallor, in consequence of suffering for many years from malarial fever, taken during the siege of Venice in 1848 and 1849.

Every one knows the history of those barbarians, who were accustomed to drink the blood of their victims at a feast after their battles; and also of those who were supported by the blood of their companions, wrecked in the *Medusa* in 1807; and of others who have been nourished in the desert by the blood of animals.

Dioscorides affirms in his *De Medicinali Materia*, that animal blood has been used for the purpose of curing diseases; the old women adopted a similar system.

Finding among the English and American patients in Nice an unconquerable repugnance to such a remedy, the name only having the power of producing nausea, I was obliged to disuse it. But afterwards a dim recollection of the manner in which it was administered by old medical men in my youth, made me adopt the plan of giving it in the form of dry powder.

History also relates that dry-powdered blood was used before the thirteenth century, when the quack, Jean de Gaddesden, brought it into renown.

It is easy to understand the comparative difference between the warm and the dry blood. In the first there is life with animal heat, and volatile principles, which conduce to assimilation. Notwithstanding, in the dry blood, fibrin, albumin, hæmatozin, manganesic, and ferruginous salts remain.

Between the seventeenth and eighteenth centuries the celebrated anatomist of that day (F. Buischio) found in the blood the necessary elements for the composition of every tissue of our body. At the end of the seventeenth century also was discovered one of the most important principles of the blood, that is iron, by M. Lamey, and afterwards by Berzelius. According to Berzelius, a distinguished professor of chemistry, the blood of the ox is most similar to that of man; this, in fact, I have used in several cases of general weakness with anæmia, and in cases of chlorosis.

The blood of the ox, after being dried in a water-bath, is reduced into a very fine powder, and grated through a sieve. Dry blood can be taken for any length of time, being almost tasteless, and no repugnance is likely to be felt, as is often the case with raw meat. It can be taken as any common powder, mixed with soups, milk, marmalade, chocolate, or enclosed in a wafer.

In two cases I have given the powdered blood under the name of nutritive powders, mixed with a small quantity of pepsin; choosing that name lest ladies, startled by one more precise, might have difficulty in taking the medicine.

The quantity to be taken may vary according to the age, sex, or the state of health and digestive power of the patient. In general, I begin with thirty grains, which is increased according to circumstances; but quantity must be left to the discretion of the physician who prescribes.—*Med. Press and Circ., Lond., Jan.* 29, 1873.

DETECTION OF THE SUBSTITUTION OF CARBOLIC ACID FOR CREASOTE.

By John A. Clark, Guelph.

In the *Can. Pharm. Journal*, No. 12, Vol. 5,* there is a communication from Mr. Morson, London, on the substitution of carbolic acid for creasote. He states that there is no good test for distinguishing between the two, but proposes the use of glycerin, in which carbolic acid is easily soluble, but creasote insoluble. A far better test is the alcoholic solution of perchloride iron (or Tr. Ferri Perchlor B. P.), which, when added to an alcoholic solution of creasote, produces a "dark greenish-blue" color, but with an alcoholic solution of carbolic acid only a "light brown" coloration. By this test 1 part of creasote in 500 parts carbolic acid can be easily detected. But the adulteration of creasote by carbolic acid is more difficult to detect, but can be ascertained in the following way: Boil a few drops of creasote with nitric acid (about 2 drs.) until red fumes are no longer evolved; this yields a solution, which, when neutralized with solution of caustic potash, gives *no precipitate*, the creasote forming oxalic acid. Carbolic acid, when treated in the same manner, is very violently acted on by nitric acid and forms picric acid (trinitro-phenylic acid), which, when neutralized with solution of potassa, gives a "yellow crystalline" precipitate. 1 part of carbolic acid in 50 parts creasote can be readily detected in this way.—*Can. Pharm. Journal, May*, 1873.

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* See *American Journal of Pharmacy*, pp. 310, 465 and 503.

ON THE CHARACTERISTIC PROPERTIES OF THE COMMON OILS.

By M. G. Glœssner.

After having reviewed the characters of the various fatty non-drying oils (olive, almond, rape, sesame, palm), and of the drying (linseed, poppy, castor), the author tabulates the properties by which they may be recognized.

Action of Potassa in the Cold.—We agitate 5 volumes of the oil with 1 volume of potassa of sp. gr. 1·34. The mixture is:—

White—almond, rape (best), bleached olive.
Yellowish—Poppy, olive, rape, sesame.
Greenish—Linseed, hemp. Oils containing copper, or artificially colored.
Rose—Rape (refined).
Brown and compact—Hemp.
Yellow-brown and liquid—Linseed.
Red—Whale.

The oil is poured in a test-tube upon an equal measure of fuming nitric acid. There appears at the surface of separation a narrow transparent green zone—Almond.

Deep green, with a rosy halo at top—Poppy.
Clear blue-green—Olive.
Reddish-brown—Linseed. After some time the coloration extends to all the oil.
Green and red at the upper part—Rape.

Action of Concentrated Sulphuric Acid (10 drops of oil to 2 of acid). Color at the surface of separation:—

Fine green, with brown stripes—Rape.
Yellow, passing into olive-green when stirred—Poppy (*Media sativa*).
Red stripes, shading into black—Whale.

Equal volumes of acid and of oil dissolved in bisulphide of carbon:—

Fine violet coloration passing into brown—Whale.

Same proportions, without sulphide of carbon:—

Deep green coloration—Rape, linseed, hemp.

Red coloration—Whale.

Reaction of Elaidin.—The mass becomes solid, clotty and white—Olive, almond, rape (bleached). Ordinary rape oil gives a yellowish mass.

Red solid mass—Sesame.

Waxy white mass—Castor.

The mass of elaidin traversed by oily striæ—Mixture of drying oils.

No action—Linseed, poppy, nut.

Ebullition with Water and Litharge:—

Solid plaister—Olive.

Viscous plaister—Rape, almonds, sesame.

Viscous plaister, growing hard in course of time—Drying oils.

Solubility in Alcohol.

Olive	1 : 1	Linseed	1 : 40
Poppy	1 : 25	Almonds	1 : 60
Hemp	1 : 30		

Specific Gravities.

Poppy	0.913	Sesame	0.923
Rape		Sunflower	0.926
Almond (*Brassica campestris*)	0.914	Castor	0.950—0.960
Olive	0.918	Linseed	0.930

Melting-points.

	Degrees. C		Degrees C.
Hemp	— 27	*Brassica campestris*	— 4
Castor	— 18	Sesame	— 5
Linseed	— 16 to — 20	Olive	2.5
Sunflower	— 16	Almond	— 20 to — 25
Rape	— 6		

—*Chem. News*, 1873, *May* 2.

ADULTERATION OF WHITE LEAD.

By Rudolph Wagner.

It has been, and is still, to some extent, the custom in the manufactories to add to white lead a certain quantity of sulphate of baryta, either native or artificially prepared. Lead is often mixed with sulphate of lead, chalk, carbonate of baryta, sulphate of baryta, and pipe clay; but these adulterations are most common in the retail trade. Not any of these substances ought to be present; they possess no covering power and needlessly absorb oil. Pure white lead ought to be perfectly soluble in very dilute nitric acid, and in the resulting clear solution caustic potassa should not produce a precipitate, for if it does chalk is present. An insoluble residue in the dilute nitric acid indicates the presence of gypsum, heavy spar or sulphate of lead. The sulphate of lead may be recognized by reducing the lead with the blowpipe. Sulphate of baryta can be made evident by ignition with charcoal in the blowpipe flame, treating the residue with dilute hydrochloric acid, and adding a solution of gypsum, which again yields a precipitate of sulphate of baryta. Gypsum does not yield an insoluble precipitate with dilute nitric acid, but does so with a solution of oxalate of ammonia. According to Dr. Stein, the most simple method of estimating quantitatively a mixture of white lead and sulphate of baryta is to heat the weighed sample in a piece of combustion tube, and to collect the carbonic acid in a Liebig's potassa bulb, a chloride of calcium tube being fastened by a perforated cork to the combustion tube to absorb the moisture. The quantity of carbonic acid given off stands in direct proportion to the quantity of carbonate of lead present. Pure white lead of good quality gives off about 14·5 per cent. of the gas, and, according to Dr. Stein's researches, the undermentioned series of mixture gave off the quantities of carbonic acid indicated:

33·3 parts of white lead and 66·6 parts of heavy spar lost by ignition 4·5—5 per cent.

66·6 parts of white lead and 33·3 parts of heavy spar lost by ignition 6·5—7 per cent.

80·0 parts of white lead and 20·0 parts of heavy spar lost by ignition 13·0 per cent.

50·0 parts of white lead and 50·0 parts of heavy spar lost by ignition 10—10 per cent.

The extensive applications of this material as a constituent of paints, "to give body," as the term runs, and as putty, and for various chemical operations, are well known. It has been experimentally proved by Dr. G. J. Mulder in his treatise "On the Chemistry of Drying Oils and the Practical Applications to be Drawn Therefrom," that the quantity of white lead used in proportion to linseed oil for painting purposes is far too great, being on an average from 250 to 280 parts of white lead to 100 parts of oil, while the author found that 52 parts of unadulterated white lead, or 44 parts of oxide of lead to 100 parts of raw or boiled oil are amply sufficient quantities. White lead, however useful, is very sensitive to the action of sulphuretted hydrogen, by which it is blackened and discolored, causing not only all the white paint to be spoiled, but also all pigments and paints of which white lead is a constituent, as may be seen to a very large extent every summer at Amsterdam, where from the stagnant canals sulphuretted hydrogen is abundantly given off. The action, however, of the sea air in autumn has the effect of somewhat restoring the blackened and discolored painted surfaces to their primitive hue. The late Professor Thenard suggested that pictures which had become blackened should be cleaned by means of peroxide of hydrogen, the oxygen of which present as ozone converts the blackened lead colors into white sulphate of lead.

In this country it has become an almost universal custom to sell white lead ready ground with linseed oil into a thick paste. This practice certainly saves painters a great deal of trouble, but is also pregnant with the difficulty of detecting adulteration, while there is a chance of inferior oil—resin oil—being added. The oil almost entirely prevents the action of any acid upon the paste; even if very strong nitric acid be taken, and heat applied, the decomposition and disintegration are very slow and incomplete, and, besides, owing to the insolubility of nitrate of lead in nitric acid, the action of strong nitric acid upon oil thus mixed gives rise to a variety of compounds, which interfere with the usual modes of testing the white lead. To remove the oil in order to test white lead, the best plan is to thoroughly incorporate some of the sample with a mixture of chloroform and strong alcohol in equal parts, and to wash the mass by decantation or on a filter with a fluid composed of alcohol.* The quantity of the oil may then be ascertained by the evaporation of this solvent. After washing once or twice with boiling alcohol and then drying, the white lead can be readily tested by any of the known methods.—*Journ. Applied Chemistry, April*, 1873.

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*In the examination of white lead ground in oil, we have successfully used both petroleum benzin and ether, as suitable solvents for removing the linseed oil. The white lead must be thoroughly incorporated with the solvent, of which, after decantation, fresh portions should be used, until the residue after drying, becomes pulverulent, when the washing may be completed upon a filter. On treating the lead now with dilute nitric acid, a little oxidized fat separates readily.—Ed. Am. Jour. Phar.

QUALITY OF GLYCERIN AS IT EXISTS IN COMMERCE.

By Alfred Henry Mason, F. C. S.

From a more extensive paper, treating of the chemical history, its various applications, &c., we extract the part relating to the quality of the commercial article.

Many impurities are necessarily found in crude glycerin according to the process of manufacture, or the quality of water used in manufacturing; for industrial purposes these impurities are not objectionable or disadvantageous, if only present in moderate proportions. For medicinal use, of course, it is absolutely necessary that pure glycerin should be used, and the glycerin purified by Wilson's process, manufactured by Price's Patent Candle Co., is undoubtedly superior to any other I have examined. The fact that Continental manufacturers now offer medicinal glycerin, *à la Price*, inodorous, etc., would tend to substantiate this statement, and it occurred to me that it might be interesting to know how these various manufactures compare with Price's; hence the ultimate object of this paper.

I have selected nine samples to report upon, and these represent English and Continental manufactures.

The various chemical re-agents, shown with the results in the tabular form below, have been applied in the usual way, standard solutions being added to the specimen of glycerin (the glycerin previously diluted with an equal bulk of water), excepting the argentic nitrate—one part of solution was added to four parts of undiluted glycerin, and the mixture allowed to stand 24 hours. The specific gravity was taken at 60° Fahrenheit, with Beaume's hydrometer, and several were taken by weight and found to correspond. The odor is easily ascertained by rubbing a little glycerin on the back of the hand; the peculiar mousey smell with some samples is easily detected, and this becomes more intense by heating a little of the glycerin in a test tube. Glycerin mixed with an equal volume of rectified sulphuric acid should not produce effervescence, or coloration, if sufficiently pure for medicinal use.

By adding absolute alcohol and concentrated sulphuric acid to glycerin on heating, a fruity smell is set free, more or less intense, owing to the presence of butyric acid and (or) formic acid; the peculiar pine-apple odor is very strong in some samples, showing the formation of butyric ether.

Table of Analysis.

Sample.	Specific gravity Hydrometer.	Color.	Odor.	Odor when heated.	Sulphuric Acid.	Argentic Nitrate.	Ammonium Oxalate.	Potass. Ferrocyanid.	Ammon. Sulphide.	Barium Chloride.	Litmus.	For Butyric Acid.	For Sugar
A	31° B.	None	None	Very faint	No change	No change	No change	No change	No change	No change	No change	Slight smell	None
B	30° B.	"	"	Slight mousey smell	Slight Discoloration	"	"	"	"	"	"	Present	"
C	30° B.	"	Slight	"	"	Slight tinge	Slightly turbid	"	"	"	"	"	"
D	30° B.	"	"	"	No change	"	"	"	"	"	"	"	"
E	31° B.	"	Very faint	"	Slight tinge	Faint opalescence	No change	"	"	"	"	"	"
F	29° B.	"	Fatty	"	"	Slightly tinged	Slightly turbid	"	"	"	"	"	"
G	28° B.	Slightly tinged	"	Disagreeable, Fatty	"	More tinged	"	"	"	"	"	"	"
H	28½° B.	"	Mousey	More mousey	Discoloration	No change	No change	"	"	"	"	"	"
I	28° B.	Brown	Strong and fatty	Strong and fatty, very offensive	Intense discoloration and disagreeable odor	Flocculent deposit	Great deposit	"	Discoloration & black deposit	Deposit	Red	Plenty, and disagreeable fatty smell	"

For the detection of sugar and glucose in glycerin.—To five drops of the glycerin to be tested, add 100 to 120 drops of water, one drop of pure nitric acid, and one grain of ammonium molybdate, boil the mixture, and in less than two minutes it will assume an intense bluish-green color if any sugar or glucose is present.

In the foregoing table, A represents Price's patent glycerin; B, C, D, E, F, were sold by Continental manufacturers as double distilled white glycerin, *à la* Price, inodorous, guaranteed to stand the nitrate of silver test (sp. gr. 30° to 31° B.); G and H, as refined glycerin (28° B. sp. gr.): and I is a sample of concentrated *crude* glycerin from Hamburg, as exported for manufacturing purposes. A, B and H have been exposed to strong sunlight in closed vessels for two days. A was unchanged, but B and H had the mousey odor very fully developed, but without discoloration.

It will be observed that there are slight impurities in B, C, D, E, but I think none to prevent the majority of the samples being used in pharmacy and medicine when not intended for internal administration.

I consider that pure medicinal glycerin should not be affected by nitrate of silver, sulphuric acid, oxalate ammonia, or exposure to sunlight, and should be perfectly free from smell after this treatment. —*Chemist and Druggist*, 1873, *April.*

Varieties.

India Rubber Varnish.—There are many substances, among them nitrate of silver, upon which pure india rubber has no deleterious effect. Now, as india rubber dissolves with readiness in chloroform, sulphuric ether, bisulphide of carbon, and caoutchoucin, and as these solvents, when evaporated, leave the rubber firm and unaltered, it is evident that we have in a varnish so composed a means of applying a coating of pure rubber of any degree of thickness to the inside of any vessel, such as a photo bath composed of either ebonite, gutta percha, wood, or any other material of a similar description. From experiments made in this direction, using bisulphide of carbon as the solvent, a coating of rubber of a good quality has been obtained, which will answer most effectively for preventing all contact between the silver solution and the material of which the bath itself is formed.—*Sci. Amer., March* 15, 1873.

Note on the Solvent Action of Glycerin on the Metallic and Calcareous Oleates, and on Sulphate of Lime.—E. Asselin.—Pure glycerin, free from lime, of the sp. gr. 1·114, dissolved 0·71 per cent. of iron soap, 0·94 of magnesia soap, and 1·18 of lime soap. The metallic and earthy sub-soaps, which impregnate the fibre of wool in the process of combing, are easily emulsified by water mixed with glycerin. Sulphate of lime dissolves in glycerin to the extent of 0·957 per cent., and the amount dissolved increases with the temperature.—*Chem. News, Lond., April* 25, 1873, *from Compt. rend.*

An Application to Corns.—A correspondent in Illinois writes us: "I find in the 'Medical and Surgical Reporter' of Jan. 25, 1873, a cure for corns, and as that remedy (green peach tree leaves) could not be easily obtained at present in this climate, and as corns are most troublesome in winter, I would suggest a remedy equally effective and obtainable at any time. It is castor oil applied to the corn after paring closely each night before going to bed. It softens the corn and it becomes as the other flesh. It will cure every time."—*Med. and Surg. Reporter, Feb.* 22, 1873.

On the Value of Sulphate of Cinchonia.—M. Briquet, the well-known author of an exhaustive treatise on cinchonia, advocated the properties and uses of sulphate of cinchonia at a recent meeting of the Paris Academy of Medicine. His conclusions were based upon 893 authenticated cases of cure by the sulphate, from Magendie and Chomel to our days. Its success was especially great in cases of intermittent fever of middling intensity. Furthermore, it arrests the paroxysms of typhoid, amends the symptoms of intermittent neuralgia, and is of great benefit in acute articular rheumatism. Dr. Briquet lays great stress on the mode of administering the drug. It should be given in a watery solution, in doses of from fifty centigrammes to one gramme (eight to fifteen grains), according to the intensity of the fever. The whole dose must not be given at once, but must be divided over five or six hours, and it is extremely important that the substance should be taken during the apyretic interval, and at least eight or ten hours before the return of the fit.—St. Louis *Med. and Surg. Journ., March*, 1873, *from London Lancet.*

Improvement in Bending Glass Tubes.—A. H. Gallatin.—If the glass tube we desire to bend be filled with *sand*, and each end stopped to prevent its escape on heating over a Bunsen burner, it will be found that the tube may be quite doubled if desired, a perfect curve being produced. In this way we may promptly produce accurate bends of any desired size, in tubes of any bore, without any previous skill in glass-working. Obviously, the principle depends on a uniform distribution by the sand of the pressure exerted. A similar plan is resorted to by metal-workers in bending tubes of lead.—*Journ. Franklin Inst., March*, 1873.

Gilding Iron.—The employment of sodium amalgam is recommended by Kirchmann as a simple and effective means of covering iron with a gilded surface. The process, in brief, consists in first spreading the amalgam upon the surface of the metal, which at once coats itself with a layer of quicksilver, even though it may be somewhat rusted. Upon the surface thus prepared a concentrated solution of chloride of gold is poured and the mercury volatilized by heating before the lamp or in a furnace. The result is that a gold surface remains behind which is susceptible of a bright polish. With silver and platinum, it is said, similar results may be obtained.—*Ibid.*

A New Solvent for Iodine.—Dr. I. Walz.—I find that glacial acetic acid is an excellent solvent for iodine, certainly not inferior to alcohol. On heating acetic acid with excess of iodine to boiling, and then allowing to cool slowly, beautiful, large, slender crystals of iodine will form (sometimes half an inch long). The crystals formed from supersaturated alcohol solution of iodine are short, of arrow-head shape, and by no means so abundant, for glacial acetic acid takes up far more iodine hot than cold. I hope you will make this easily executed experiment, and you will then see the finest iodine crystals yet produced.

If saturated alcoholic and glacial acetic solutions of iodine are mixed in equal proportions, and allowed to stand, *acetic ether* is formed. The presence of a little MnO_2 and a drop of SO_4H_2 seems to promote the formation, but is quite unnecessary.—*Ibid., April*, 1873.

Minutes of the Pharmaceutical Meeting.

A pharmaceutical meeting was held May 20th, Mr. Joseph P. Bolton in the chair. In absence of the Registrar, William McIntyre was elected to act in that position pro tem.

The minutes of the last meeting were read and approved.

The Chairman introduced Mr. John Butler, of Germantown.

Prof. Maisch made the following presentations: Two volumes of the Swiss Weekly Journal of Pharmacy for the years 1870—71; Proceedings of the Montreal College of Pharmacy, containing papers on the Eucalypts of Australia and on essential oils obtained from various Victorian plants; from Mr. J. Creuse, preparations of iron, free from ferruginous taste, made by his new method with alkaline citrates, sesqui-iodide of iron, syrup of ferric iodide, elixir of the same and tincture of chloride of iron.

Salts of the sesqui oxide of iron are now preferred for medical use, this being the state in which iron is always found in animal and vegetable substances used for food.

Granular effervescent Vichy salts, very handsome in appearance, made by Keasby & Mattison, of Philadelphia, was exhibited.

The new General Index of the American Journal of Pharmacy was shown and its arrangement explained. Mr. Wilder has produced a very creditable work, consisting of two parts—an alphabetical index of the contents of the papers published in forty-two volumes of the Journal and one of the authors.

Prof. Maisch exhibited a plant, *Asclepias curassavica*, L., the root of which is used in the West Indies in place of ipecacuanha.

This being the last meeting of the season, it was suggested that the members of the College should, during the coming months, carefully note down their experience with the preparations of the new pharmacopœia, with the view of bringing their observations, if not published before in the Journal, to the notice of the pharmaceutical meetings next fall, and thus contribute at once interesting and important subjects for discussion.

The meeting then adjourned.

William McIntyre, *Registrar pro tem.*

Pharmaceutical Colleges and Associations.

Vermont Pharmaceutical Association.—President Dutcher has appointed the following delegates to the next meeting of the American Pharmaceutical Association: Messrs. M. K. Paine, Windsor; A. W. Higgins, Rutland; C. B. Wilson, Montpelier; E. W. Burritt, Burlington, and Chas. H. Warren, Springfield.

Massachusetts College of Pharmacy.—The annual commencement of the seventh session was held in Horticultural Hall May 7th. The Vice-President, Dr. C. A. Tufts, conferred the degree of Graduate in Pharmacy upon six gentlemen: Wm. W. Bartlett, L. C. Flanagan, F. M. Loring, Chas. P. Orne, Saml. C. Tozzer and Jos. S. Whall. Professor C. M. Tracy delivered the valedictory, and Hon. G. S. Hillard the annual address. The last class numbered eighty five students.

Alumni Association of the Massachusetts College of Pharmacy.—This society, which had its nucleus in the little class which graduated from the Massachusetts College of Pharmacy in 1869, held its annual meeting at the rooms of the College, No. 8 Boylston street, on the 8th of May. There were present about twenty gentlemen. After disposing of reports from various committees, the following officers were elected for the ensuing year: President, Thos. Doliber; Vice Presidents, J. C. Loud, E. L. Patch; Secretary, C. E Tappan; Treasurer, C. H. Bassett; Auditor, C. A. Tufts; Executive Board: G. F. H. Markoe, J. S. Talbot, E. S. Kelley and L. D. Drury.

The President gave an interesting account of the labors and progress of the past year, and made some valuable suggestions concerning their efforts in the future. After a congratulatory address by Prof. Babcock, an interesting discussion took place upon the late revision of the United States Pharmacopœia. The establishment of a journal of pharmacy in Boston was considered, and a good deal of enthusiasm evinced on the subject. The Association has held meetings every month during the past year, which have been attended with great interest. A large number of valuable papers have been read, and elaborate reports of experiments and studies made; among the number an interesting paper on the adulterations of milk. Reports of experiments in the manufacture of hydro-bromate of quinia and mono-bromated camphor, detection of impurities in phosphate of iron, while much valuable discussion has taken place.

The annual supper, at the American House, was attended by members and invited guests of the Association, and addresses were made by a number of the participants.

LITERARY AND SCIENTIFIC SOCIETY OF THE GERMAN APOTHECARIES OF NEW YORK.—Under this title the two German pharmaceutical organizations which had existed for a number of years in the city of New York, are now united into one chartered corporation, numbering about eighty pharmacists. They hold quarterly stated meetings and weekly conversational meetings, and keep the best German pharmaceutical periodicals circulating among the members. Their library, which contains some very valuable works, is located in the library room of the College of Pharmacy. They will be represented by a delegation at the next meeting of the American Pharmaceutical Association.

NEW YORK COLLEGE OF PHARMACY.—The Board of Trustees, at their meeting held May 1st, authorized the expenditure of a sum of money to organize a summer course in practical botany and analytical chemistry. A resolution, offered by Mr. Rice, to have the arrangements for each course of lectures made in the month of January, to enable the lecture committee to issue the prospectus early in the spring, was referred to the next College meeting. On motion of Mr. Balluff, seconded by Mr. Peixotto, the Secretary was directed to send short extracts of the minutes to the "Druggists' Circular," the "American Journal of Pharmacy," and to the "Pharmacist and Chemical Record."

Drs. William Neergaard and W. Manlius Smith having resigned their position as members of the New York Board of Pharmacy, a special meeting of the College was held May 22d to fill these vacancies.

CINCINNATI COLLEGE OF PHARMACY.—At the monthly meeting held April 8th, Professor Wayne presented to the College, among other specimens, some expressed and essential oil of peach kernels, the former bland and sweet like the expressed oil of almonds; the latter having all the properties of essential oil of almonds, but the yield being only one and a half drachms from twenty-five pounds of kernels. In the discussion on fluid extracts of the new pharmacopœia, the use of glycerin was favorably commented upon for those containing much tannin, like cinchona, as tending to prevent change and precipitation; but the opinion was that it had been carried too far, and that it was, in many cases, an expensive addition without material benefit.

Professor Wayne observed that the reduction of oxide of mercury by oleic acid did not occur, if the acid was obtained by saponification instead of by distillation. A specimen of mercurial plaster was exhibited, made by decomposing soda soap by mercuric chloride; it was of a pale yellow color, contained 32 per cent of mercury, dissolved freely in oils and is recommended as a substitute for the oleate of mercury, having the same therapeutic value.

Professor Judge presented specimens of *Mylabris cichorii* and *phalerata*, and gave an account of their occurrence, uses and strength in cantharidin.

The Louisville College of Pharmacy has received a donation to its cabinet, from Messrs. Grimault & Co , Paris, through Messrs. A. Peter & Co., of twenty specimens of pharmaceutical preparations; also a donation from Mr. Charles Mohr, Mobile, Ala., consisting of capsule of *Hura crepitans*, fruit of a palm, legume of a species of Hovea; roots of *Exogonium purga* collected by the donator; root of an Ipomœa brought into market by the Indians with true jalap; fruit of an Aristolochia.

The undersigned was directed, by the Board of Directors, to tender, through the "American Journal of Pharmacy," their cordial thanks for these much appreciated donations.

William G. Schmidt, *Corresponding Secretary.*

The Tennessee Pharmaceutical Association has been formed on the 14th of May, at Nashville, the preliminary session having been held on the preceding day at the Council Chamber. The meeting, which was well attended by pharmacists from different parts of the State, was called to order by Dr. B. Lillard, and Dr. Th. Black elected temporary chairman. After some discussion on pharmaceutical legislation and other important topics, the meeting adjourned, to constitute itself at the second session into a State Association. The following temporary officers were elected to serve until the next meeting, to be held in the fall, when a permanent organization will be effected: President, J. C. Wharton; Secretary, B. Lillard; Treasurer, R. E. Page. A committee was appointed to prepare an address to the pharmacists and druggists of Tennessee, urging them to become members; also a committee on constitution and by-laws; a committee of reception, and a committee of three to prepare a petition to Congress asking the repeal of the stamp tax, and tax on alcohol when used in connection with our business, and that the same be sent to all the druggists and physicians in the State for signature. This last committee consists of Messrs. W. D. Kline, B. Lillard and W. H. Lickhardt.

California Pharmaceutical Society.—At the meeting held April 9th at their rooms, No. 728 Montgomery street, San Francisco, Mr. Calvert in the Chair, an informal report from the Trustees of the College of Pharmacy was made, exhibiting the arrangements made and describing those yet contemplated for the lecture room.

The College has lately received from the well-known house of Powers & Weightman, manufacturing chemists in Philadelphia, a magnificent donation of fine chemicals, comprising 112 varieties.

The prospectus for the course of instruction will soon be issued and the College be in active operation.

Montreal College of Pharmacy.—At the meeting held February 6th, Mr. Christian Hoffmann, of the Geological Survey of Canada, who was formerly phytologic chemist to the State Gardens at Melbourne, Australia, read a paper on the Eucalypts of Australia, describing their products and the uses to which they are put, and reporting the results of many chemical experiments. The timber of the Eucalypts when green is generally soft, but when cut into beams, planks, etc., it soon becomes very hard and difficult to work. The bark of *Eucalyptus leucoxylon*, Fr. Mueller, contains much gum resin, and is remarkable for its hardness; that of *E. obliqua*, L'Her, is used for roofing purposes, and will furnish printing and writing paper; while the barks of many other species will yield packing paper and paste boards. Gum resins occur in the Eucalypts in flattened cavities in the otherwise solid wood as viscid liquids ultimately becoming hard and brittle. The liquid gum resins are obtained from incisions made in the wood, and lose about 65 per cent. at 212° F., when they are easily pulverized. They are usually of a dark red brown color and intensely astringent taste. Botany Bay kino is obtained from *E. resinifera*; that from *E. rostrata* is even preferred to others as an astringent.

In Victoria alone, about 71,500 square miles are estimated to be covered by various species of Eucalyptus, from which essential oils in almost unlimited quantity might be obtained. These oils are useful in perfumery as solvents for various resins, among them kourie, and for illuminating purposes, their illuminating power being almost equal or superior to the best American petroleum.

Saccharine substances, called manna, are obtained from *E. viminalis* and *E. dumosa*, the former secreted by the leaves and slender twigs from punctures or injuries, the latter being the secretion upon the leaves of the pupa of an insect of the Psylla family.

THE GENERAL AUSTRIAN APOTHECARIES' SOCIETY has received from the Department of Culture and Education of Austria, a subvention of five thousand guilders, to be expended for building their hall and school, and an additional two thousand guilders towards their cabinet of natural philosophy.

THE PHARMACEUTICAL SOCIETY OF PARIS held a meeting April 2d, M. Grassi presiding. M. Petit stated that from 25 litres of herring pickle he had obtained 30 grams muriate of trimethylamina and 45 grams chloride of ammonium.

M. Guichard showed some large crystals of benzoic acid, obtained by the slow action of sulphide of carbon upon benzoin, and said that this menstruum appears to present certain advantages as an agent for purifying resins. M. De Vrij observed that some resins, like that of *Podocarpus cupressina*, are not dissolved by sulphide of carbon.

M. De Vrij communicated the results obtained by Prof. Oudemans, of the Netherlands Polytechnic School, on the variations of the rotary power of active substances which is influenced by the vehicles in which they are dissolved, instancing cinchonidia with a left rotation varying in degree with the strength of alcohol used as a solvent, and cinchonia, whose right rotation is influenced by the use of alcohol or chloroform; hence the necessity of always employing the same solvent when making comparative experiments. M. Carles' quinimetric process* has not furnished him with reliable results, which M. Vigier accounted for by some neglect or fault in the operation. For determining the value of cinchona bark by the rotatory power of the alkaloids, the total quantity of the latter should be tested; if the rotation is powerfully to the left, the bark is valuable for the manufacture of quinia; a slight left or a right rotation, however, shows the bark to be unsuitable.

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*See American Journal of Pharmacy, 1873, p. 27.

Editorial Department.

The General Index to the American Journal of Pharmacy.—In another place we publish a review of this work, which has been compiled by Mr. Hans M. Wilder, and is now ready for distribution. The value of such a work is readily seen by those who frequently, or even occasionally, have to consult the "Journal" in search of information on new and old medicinal substances, on scientific facts, practical details, formulas, historical and other notices referring to pharmaceutical matters, either directly or indirectly. Scattered through 43 volumes (including the preliminary volume), which have been published during a period of 45 years, the information is now made available to its full extent by consulting this General Index, which will prove to be of great value not only to those possessing complete sets of the "Journal," but to all seeking information on pharmaceutical subjects, and particularly on American pharmacy. The readiness with which the "Journal" can now be consulted will doubtless induce some of our readers to complete their sets as far as possible; while those who are interested in special subjects may procure single numbers, at 50 cents each, or complete volumes, as far as the stock on hand will permit. Information on this point can be obtained from the notices of the Business Editor and the Publishing Committee contained in the back part of the volume.

The price of the General Index has been fixed by the Publishing Committee at $3 per volume in paper cover, and at $3·50 per volume bound in cloth; to be obtained on remittance of the amount to the Business Editor, H. H. Wolle, 145 N. 10th street. Great care has been bestowed upon the preparation of the manuscript and the proof-reading, to render the work as nearly free from errors as possible; and a portion of the labor having been performed gratuitously, the Committee was enabled to put the price as low as stated above, at which figures by far the largest portion of the edition will have to be sold to reimburse the College merely for the cash expenses incurred in getting out this useful and much needed Index.

The Dangerous Properties of Mixtures of Chlorate of Potassium and Tannin, to which we referred in our last number, are further illustrated by the following communication from Mr. G. Macdonald, now of Kalamazoo, Mich., whose suggestion to dispense the dry articles not mixed, but in separate papers, we heartily commend to the notice of both physicians and pharmacists:

Chlorate of potassium and tannin came very near having another victim in Cairo, Ill., about three months ago. The explosion was so violent as not merely to break the mortar (a strong wedgewood one), but to shiver it into innumerable fragments; in fact, the bottom of the mortar was ground almost into fine powder. The materials had been loosely mixed some time before, and had become very dry. A small quantity—perhaps 20 grains—were put into the mortar, and rubbed with considerable pressure. The truth is, the young man was showing off to a customer with a little fulminating powder that he had made. Fortunately, no one was injured.

I not long ago received from a physician a prescription ordering 6 oz. potass. chlor. and 6 drachms tannin, to be mixed together, and divided into 12 parts, to be used as a nasal douche. I did not choose to take the risk of even mixing them loosely with a spatula, but divided each ingredient into 12 parts, and folded them up separately, directing the customer to add one of each of the powders to the specified quantity of water. This, it appears to me, is the only safe way of dispensing such prescriptions.

Oleate of Mercury and Morphia.—One pound (7000 grs.) of this preparation, of 2 per ct. morphia strength, contains 140 grains of basic morphia. The figure 170 on page 160, line 8 from top, should be corrected to 140. The word *combined* on page 159, line 8 from bottom, should read *uncombined*.

The "Polaris" Polar Expedition.—Our readers are aware that a portion of the crew of the "Polaris" have recently been rescued from the ice upon which they had been drifting for six months. Among them is Joseph Mauch, a brother of the celebrated African traveller Carl Mauch. Joseph Mauch, we have been informed, is a graduate of the New York College of Pharmacy, and was formerly with Mr. Th. Frohwein. He is described as a highly educated and scientifically trained young man, who sought to join Captain Hall's expedition in a scientific capacity, but, finding it impossible, joined as sailor. Although small in stature, Mr. Mauch is strongly built, and, like his brother, imbued with a passionate desire for travel and exploration.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Index to the American Journal of Pharmacy, from its commencement, December, 1825, to November, 1870, inclusive. Compiled by Hans M. Wilder. Philadelphia: Merrihew & Son, Printers. 1873. 8vo, pp. 318. Double column

This work, to which we have repeatedly referred during the last two years, is at last ready for distribution, its pages being of the same size as those of the "American Journal of Pharmacy," and printed with the same clear type. It is prefaced by a historical notice of the "American Journal of Pharmacy," and a note by the author, from which latter we learn that the following rules have been always kept in mind in preparing the Index: 1, completeness; 2 systematic arrangement (to put together what belongs together); 3, synonyms (such as are likely to occur to the American pharmacist), and, 4, accuracy as to volume and page.

Having had occasion to examine the proof-sheets, we can testify to the strict adherence to these rules by the author. The book contains about 30,000 references in all, containing not merely an alphabetical enumeration of the titles of the papers and abstracts published, but mentioning every scientific term, about which some notice is contained, or every general scientific fact noticed in the "Journal." Hence we find occasionally fifty and more references made to one essay. The importance of this will be readily noticed on consulting the Index, as it enables us not only to find the volume and page containing a notice of a certain article, but likewise the substance of such notice as far as it can be expressed in a few words.

The arrangement adopted will greatly facilitate the use of the book, duplications being avoided, if possible, without losing sight of the synonyms, while the system chosen is strictly adhered to. Thus we find under *Acacia* the references to the botanical species of this genus, and the information to seek for the references concerning Gum arabic, Catechu, &c., under the letters *G* and *C*. As a synonym of Acacia, *Mimosa* is likewise noticed. Under the head of *Mercury* are contained only the facts relating to the metal and to the general properties of its compounds; while all special references to the chemical compounds, and particularly to the salts, are found under HYDRARGYRUM, and the pharmaceutical preparations, like Mercurial and Citrine ointments, only under *Unguentum*, the heading of their class. It follows from this statement that notices to the same preparation are not scattered in different places, but are found together in one place, no matter which term or synonym may have been used by the author of the paper.

To further increase the usefulness of this Index to the American pharmacist, copious references have been made to Wood and Bache's Dispensatory of 1869 and to Parrish's Pharmacy, 1867, two books readily accessible to all.

The references under each heading are again systematically grouped together and alphabetically arranged, the chief information contained in the papers being indicated by italics; thus we have under Elemi the following subheadings in italics: *account—analysis—artificial—behavior—from Bengal—oil—resin—solubility.*

The second part, covering 68 pages, is an index of authors, their papers or mere notices of their observations as published in the "Journal" being grouped together under the name of the authors. Though of less importance than the first part, it is nearly as complete as the latter, the credits to American authors being, perhaps, fullest; while no paper has been omitted which had been printed in the usual type among the original and selected matter, also the more important references contained under the headings of Miscellany, Varieties, &c., have been enumerated in this part.

The work as a whole is creditable alike to its author, the printer, and the College which ordered its publication, though by the advance subscriptions less than one-tenth of the final cost had been secured.

Grundlagen der Pharmaceutischen Waarenkunde. Einleitung in das Studium der Pharmacognosie. Von Dr. F. A. Flückiger, Professor an der Universität Strassburg. Berlin, 1873: Julius Springer. 8vo, pp. 138.

Principles of Pharmaceutical Materia Medica. Introduction into the Study of Pharmacognosy.

The microscope has exerted an important influence upon the study of pharmaceutical materia medica, so that during the last two or three decades the more or less vague descriptions of external appearances have gradually disappeared to make room for the by far more important relations of internal structure; in fact, aside from the morphological relation of the drugs, the structure alone will in the future, probably, furnish the only true *scientific* basis for the correct classification of drugs. The cinchona barks alone are sufficient to demonstrate the necessity of such a system, after the patient and important labors of Weddell, Delondre, Howard, Berg and others, which will doubtless be gradually perfected, since the cultivation of numerous species of cinchona in different parts of the world make it possible now to study the bark of each species during different periods of its growth, instead of the commercial bark, which was hitherto mostly of uncertain origin or an evident mixture of the barks of various species.

Individuals of the same species resemble each other closely in their internal structure, though they may differ widely in regard to their external properties, in consequence of locality of growth or cultivation, exposure to sunlight, moisture, &c., and of terrestrial and climatic conditions generally. This external variation and internal resemblance extend likewise to most morphological parts of plants, under the same conditions which promote or retard the healthy development of the plants, and are further influenced by the treatment which such parts may undergo in their preparation for the market. On the other hand, similar parts of different allied species of plants frequently resemble each other in their physical properties, so that the surest method to distinguish them is ultimately found in their structural differences.

Such considerations determined the practical application of physiological botany to pharmaceutical materia medica, and out of the field of the former, it is particularly phytotomy or vegetable anatomy, and to a certain extent also vegetable physiology, which are of importance to the student of pharmacognosy; and to make these disciplines more accessible to the latter, awaken his interest and induce him to individual researches, are among the nearer objects of the work before us, in its ultimate endeavor at collecting, sifting and moulding into a harmonious whole the investigations and results obtained in those collateral branches which really furnish the foundation upon which the claims of pharmacognosy as a science rest.

The object in view has been attained by the author in a masterly manner, and prominent among the attractive features of his treatise are the simplicity and lucidness of his statements, the clearness of his logical deductions, the admirably executed illustrations, and the interest for his subject which he infuses into the reader.

The scope of the work is shown by the headings of the chapters, which are as follow: Object of pharmacognosy, treatment of the material (mother-plants, geographical distribution, culture, collection, history, &c.), aids of study (cabinets, literature), morphological relations (roots, tubers, bulbs, &c), internal structure, tissues, intercellular spaces, chemical constitution of cell walls, solid contents, liquid contents of cells, microchemical reagents.

Third and Fourth Annual Reports of the Geological Survey of Indiana, made during the Years 1871 *and* 1872. By E. T. Cox, State Geologist, assisted by Prof. John Collett, Prof. B. C. Hobbs, Prof. R. B. Warder and Dr. G. M. Levette. Indianapolis: R. J. Bright, State Printer, 1872. 8vo, pp. 488, with 4 maps in separate cover.

Geological surveys of districts or entire States are invaluable aids for developing their natural resources; they should, in fact, form the basis of large industrial undertakings, which depend more or less upon a bountiful supply of the raw material, and if properly carried out must necessarily result in opening new fields of enterprise and new lines of communication. The vast coal fields underlying the soil of Indiana must yearly grow in importance, and with the increase of coal mines the mining and manufacturing interests generally will be stimulated.

The combined reports for 1871 and 1872 contain the results of the geological surveys of about 15 counties, for about one-half of which number, however, the surveys are merely preliminary. The arrangement of the material is such as to give a clear picture of the topographical configuration, the geological relations, and the industrial pursuits and resources of the different counties; the numerous analyses of coal and of some ores render the reports the more valuable.

In a report on the Wyandotte cave of Crawford county (of whose galleries about 22 miles are said to have been explored) and its fauna, Prof. E. D. Cope says that it is as well worthy of popular favor as the Mammoth cave. It lacks the large bodies of water which diversify the scene in the latter, but is fully equal to it in the beauty of its stalactites and other ornaments of calcite and gypsum. The stalactites and stalagmites are more numerous than in the Mammoth, and the former frequently have a worm or maccaroni-like form, which is very peculiar. They twist and wind in masses like the locks of Medusa, and often extend in slender runners to a remarkable length. The gypsum rosettes occur in the remote regions of the cave, and are very beautiful. There are also masses of amorphous gypsum of much purity. The floor in many places is covered with curved branches and, what is more beautiful, of perfectly transparent acicular crystals, sometimes mingled with imperfect twin crystals. The loose crystals in one place are in such quantity as to give the name of *snowbanks* to it. In other places it takes the form of japanning of the roof and wall rock. In one respect the cave is superior to the Mammoth—in its vast rooms, with step-like domes, and often huge stalagmites on central hills."

The volume concludes with an essay on the manufacture of spiegeleisen,—specular or glittering iron,—by Hugh Hartmann, Ph. D.

The Sanitarian. A Monthly Journal. A. N. Bell, M.D., Editor. New York, and Chicago: A. Barnes & Co.

The prospectus informs us that the purpose of this publication is to so present the results of the various inquiries which have been and which may hereafter be made for the preservation of health and the expectations of human life, as to make them most advantageous to the public and to the medical profession."

The contents of the first number are as valuable as they are varied, and give promise that a real want will be supplied by the "Sanitarian," and that not only the physician, but all intelligent persons who value the *preservation of health*, will find its pages interesting and instructive. It is published in monthly numbers, of 48 pages, at the subscription price of $3 per annum.

Hygiene. A Fortnightly Journal of Sanitary Science. New York: G. P. Putnam's Sons. 16 pages each. Price $2 per year.

The various subjects are treated in a popular manner and in a pleasant style, giving a summary of hygienic news and observations, and discussing sanitary measures of local and general interest.

Ophthalmic Contributions. By George Strawbridge, M.D., Lecturer on Diseases of the Eye, in the University of Pennsylvania, &c. Philadelphia: Lindsay & Blakiston, 1873. 8vo, pp. 26, with 3 plates.

A reprint, from different medical journals, of three papers by the author, entitled: Dermoid tumor of the cornea; An additional method for the determination of astigmatism; Cyst of the iris, removed by operation.

American Association for the Cure of Inebriates. Proceedings of the Third Meeting, held in New York October 8th, 9th and 10th, 1872. Albany: Printing House of Van Benthuysen & Sons, 1873. 8vo, pp. 127.

Besides the minutes and several essays the volume before us contains reports of the reformatory homes and asylums for the cure of inebriates, located in the States of Massachusetts, New York, Pennsylvania and Maryland; also, a report of Drs. D. G. Dodge and Joseph Parrish, delegates appointed at the request of a special Committee of the British House of Commons to go to England and give their evidence on the treatment of inebriates.

The officers for the current year of this useful Association are: Joseph Parrish, M.D., of Pennsylvania, President; C. J. Hull, of Illinois, and Otis Clapp, of Massachusetts, Vice-Presidents; D. G. Dodge, M.D., of New York, Secretary, and T. L. Mason, M.D., of New York, Treasurer.

The fourth meeting will be held, in the city of New York, on the first Tuesday in October next.

New York State Inebriate Asylum, Binghamton, N. Y. Annual Report of the Superintendent and Physician for the Year 1872. Albany, 1873. 8vo, pp. 62.

The report was transmitted to the State Legislature in Feb., 1873.

Civil Malpractice. A Report presented to the Military Tract Medical Society at its 15th Semi-Annual Meeting, Jan. 14th, 1873. By M. A. McClelland, M.D. Chicago: W. B. Keen, Cook & Co., Publishers. 8vo, pp. 74.

This little volume endeavors to give an account of the principles involved in a number of adjudicated suits for malpractice, and to carry out this object quotes largely from charges and decisions of the courts. A chapter on "negligence and skill from a medical standpoint" concludes this report, which appears to be well worthy the perusal of the physician and surgeon, and to deserve the attention of the lawyer, who may be called upon to act as counsel in cases of so called malpractice.

Proceedings of the Vermont Pharmaceutical Association at the Third Annual Meeting. Rutland, 1873. 8vo, 32 pages.

The meeting, which was held at Montpelier in October last, seems to have been an interesting and profitable one. Various subjects of interest to the profession were discussed, several essays were read, and the membership was considerably augmented.

THE

AMERICAN JOURNAL OF PHARMACY.

JULY, 1873.

EFFERVESCING SOLUTION OF TARTRATE OF SODIUM.

By Adolph W. Miller, M. D., Ph.D.

This preparation is offered as an improvement on the popular solution of citrate of magnesium. The formula for its manufacture was devised by Mr. Joseph Landschütz, a veteran pharmacist of this city, who has been for some time dispensing it, and who states that his customers express a decided preference for it.

The U. S. Dispensatory says of tartrate of sodium, that it is recommended by M. Delioux as an agreeable purgative, almost without taste, and equal to sulphate of magnesium in its medicinal effects. The merits claimed for the solution of tartrate of sodium are that it is more pleasant to the taste than even citrate of magnesium, while it is more reliable and efficient in its action as a purgative, with less tendency to produce tenesmus. Another decided advantage is the fact of its forming a permanent solution, from which no precipitate settles down, and last, though not least, its much greater cheapness, costing only about one-fourth as much as the magnesium citrate. The present high price of citric acid seems to offer peculiar temptations to cheaper sophistications, such as sulphate of magnesium, as pointed out by Mr. Wm. R. Warner in his essay on page 397, vol. 39 (1867), of this Journal. The retail price of 25 cents per bottle, which has been adopted in many pharmacies of this city, in reality yields an entirely inadequate profit to the vendor, while competition in many localities makes it difficult to obtain a higher rate. It would therefore seem to be in the interest of both druggists and physicians to make a trial of the new aperient under consideration, which promises to eclipse the now renowned citrate of magnesium.

Mr. Landschütz's formula for filling 14 of the ordinary 12 ounce citrate bottles, is as follows:

Dissolve 9 oz. crystallized tartaric acid, and 17 oz. crystallized carbonate of sodium, in about one quart of cold water.

Provided the acid is not moist and the carbonate not effloresced, the above solution will be nearly neutral. In general, it is best to test it, and to neutralize it, if necessary. Then dissolve in it 28 scruples bicarbonate of sodium. Filter, and add sufficient water to make the entire quantity measure 147 fluidounces.

Make a syrup from

21 oz. best crushed sugar,
14 drachms crystallized tartaric acid,
10 oz. water. After cooling, add
1 drachm spirits of lemon and mix thoroughly.

Measure 1½ fluidounces of this syrup into each of the 14 bottles. Then pour in slowly the first solution, carefully avoiding an admixture with the syrup: cork and tie each bottle as soon as filled. When this is carefully managed, but very little carbonic acid gas will escape.

Each bottle so prepared will contain about seven drachms of dry tartrate of sodium, which is a fair adult dose.

At present market rates the above ingredients will cost about five cents for the contents of each bottle, yielding a handsome and remunerative profit. The price in fact is so low, that it leaves no incentive towards substitutions, or alteration of the formula.

CARBOLIC ACID AND ITS RELATION TO CREASOTE.

By A. M. Read.

Thesis read before the National College of Pharmacy, at Washington, D. C.

Carbolic acid was discovered in the year 1834, by Runge, who found it to be a constituent of coal-tar oil. Its chemical properties were more thoroughly investigated in the year 1841, by Laurent, who made it from the lighter oils of coal-tar, and who considered it to be an hydrated oxide of a peculiar compound radical, which he called Phenyl, and described it under the name of Hydrate of Phenyl. It has been variously named by different writers, phenic acid, phenyl alcohol, hydrate of phenyl, coal-tar creasote, carbolic acid, and phenol, the latter of which is the name under which it is generally treated of in text-books, although carbolic acid is and probably ever will be its common name.

Carbolic acid is produced by the action of nitrous acid on anilin, and by the dry distillation of gum benzoin, quinic acid, chromate of pelosina, salicylic acid, coal and the resin of Xanthorrhœa hastilis. It is found in the urine of the horse, cow and man, and in castor. It is also reported as having been obtained from a plant growing on the high lands of India (the Andromeda Leschenaultii), which is said to yield* a very pure quality, less deliquescent than that made from coal-tar oil, but at a much greater cost. It forms the chief constituent of the acid portion of coal-tar oil, from which it is generally obtained by the process given below.

The coal-tar oil is subjected to distillation in a retort furnished with a thermometer, and the portion that passes over between the temperature of 150° and 200° C. (302° and 390° F.), is collected apart. This product is then mixed with a hot strong solution of caustic potash and left to stand, whereby a whitish, somewhat crystalline pasty mass is obtained, which, by the action of water, is resolved into a light oily liquid and a dense alkaline solution. The latter is withdrawn by a siphon, decomposed by hydrochloric acid, and the separated oil purified by contact with calcium chloride, and redistillation. It is then exposed to a low temperature, and the crystals formed are drained from the mother-liquor and carefully preserved from the air.

Pure carbolic acid forms long colorless prismatic crystals, which melt at 35° C. (95° F.), to an oily liquid, boiling at 180° C. (356° F.), and greatly resembling creasote in many particulars. It is soluble in about fourteen parts of water, freely soluble in alcohol, glycerin, ether, and strong acetic acid, and gives no acid reaction to test paper. It is very deliquescent, absorbing moisture from the atmosphere with avidity and liquefying. It coagulates albumen readily, and is therefore a powerful antiseptic. Sulphur and iodine dissolve in it. Nitric acid, bromine, and chlorine attack it with energy, forming substitution products, all of which are of an acid character. It also forms substitution-products with sulphuric acid, and is dissolved by alkalies, forming salts called phenates. It reduces mercuric oxide at the boiling point; separates silver from the nitrate; reduces the peroxide of lead to the protoxide; and upon heating it with arsenic acid forms a yellow substance called xanthophenic acid. One of the most common impurities found in carbolic acid is coal-tar oil. This can be easily detected by mixing the suspected acid with about twenty parts of water, when the acid will be dissolved, leaving the insoluble oil floating on the surface. Pure carbolic acid gives a pure blue color to pine wood previously treated with hydrochloric acid; a green color indicates anilin, and a brown pyrrhol. It ought not to turn brown in the air, even in the presence of ammonia; and should give, with sulphate of iron, not a red but a pure lilac color. When emersed in an aqueous solution of chromic acid it is immediately turned black.

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* From its volatile oil, of the composition of oleum gaultheriæ.—Editor.

There have been a great many tests given to distinguish creasote from carbolic acid; but none of them have proved satisfactory. I give below some of the principal ones now used for that purpose.

With three or four volumes of a saturated aqueous solution of baryta, carbolic acid forms a clear solution, which, after standing, gives no deposit, or only a slight pulverulent one, while with creasote it forms an incomplete cloudy solution.

With an alcoholic solution of chloride of iron, creasote gives a green color, carbolic acid a brown; but with an aqueous solution of the same, creasote gives no reaction, while carbolic acid gives a blue color.

According to Mr. Morson, pure creasote is insoluble in glycerin, while carbolic acid forms with it a perfectly clear solution. As this test has been the subject of some controversy which has attracted considerable attention, I have made a few experiments with it, the results of which I give below.

I first tried the common creasote of commerce with an equal volume of glycerin, and found it to be readily soluble; Merck's gave the same result, but Morson's refused to dissolve in glycerin, spec. grav. 1·253, even after three or four volumes had been added.

I then carefully added carbolic acid to a mixture of Morson's creasote and glycerin, and found that upon the addition of twenty-three per cent. of Calvert's No. 2 acid the creasote became soluble, forming a perfectly clear solution with the glycerin.

Upon the addition of water to the three solutions of creasote, they each became cloudy, and the creasote soon separated; while, upon a solution of carbolic acid in glycerin, water had no effect whatever.

Some time ago, while preparing a catarrh mixture in which carbolic acid is used in conjunction with liquor ammoniæ fortior, alcohol and water, I found that upon the addition of the ammonia to the acid, the acid was readily dissolved, forming a clear solution, which did not change upon the addition of the other ingredients; but which, after standing a few hours, became a beautiful violet blue color. Having been taught by text-books that carbolic acid was insoluble in ammonia, I was somewhat surprised at this result, and upon referring to Watt, Gmelin, and other authorities, and finding that they made the same statement,* my surprise was somewhat intensified. I immediately instituted a series of experiments, and found that carbolic acid was certainly soluble in ammonia, but whether owing to impurities present I could not say. I used Calvert's No. 2 acid, which was immediately dissolved by the ammonia, forming a clear solution, which, upon standing about six hours, gave the violet blue color spoken of above, the acid still remaining in solution, and giving no precipitate.

I then tried the ammonia upon common creasote, which I found to be insoluble in it, but which, after a short time, acquired a light blue color.

To carry these experiments to a successful issue, it became necessary to procure chemically pure carbolic acid and creasote. After a number of attempts I succeeded in getting Morson's and Merck's creasote, and having in the meantime found in the Druggists' Circular a process for purifying carbolic acid, which, with some modifications, I have used, I have succeeded, I think, in confirming my first experiments.

I will give the process of purification as used by myself.

I put into a pint flask one ounce of Calvert's No. 1 acid, crystallized, and gradually added ten ounces of distilled water, shaking t frequently, when I found that six and one half drachms of the acid were dissolved, leaving one and one-half drachms undissolved to contain the impurities, which are less soluble than the acid. As soon as the solution became clear, I carefully poured it off, placed it in a hydrometer glass, and added, with constant agitation, finely powdered salt (previously purified by dissolving it in water, filtering the solution, and evaporating to dryness), until the water was saturated, and the acid arose to the top. I then carefully removed the acid with a pipette. Upon the addition of ammonia to this product, it was very readily dissolved; but it did not give the violet blue color until after standing about twelve hours. Not being satisfied, I repurified it in the same way, being careful not to add as much water as I did at first.

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* Note by the Editor.—Gmelin's Handbook, edition of Cavendish Society, vol. xi, p. 150, contains the following:

Carbolate of Ammonia.—Carbolic acids absorb ammoniacal gas abundantly and with evolution of heat, forming carbolate of ammonia (Laurent, Hoffman, Ann. Pharm., 47, 75). This salt, passed in the state of vapor through a glass tube at a low red heat, deposits a small quantity of charcoal, but does not form any anilin; which, however, is formed at 300° C., in sealed tubes, and sparingly when an alcoholic solution of carbolate of ammonia is set aside for a month, (Laurent). Strong ammonia dissolves quickly in cold creasote, and the mixture turns red when exposed to the air, (Reichenbach). The salt obtained with carbolic acid remains colorless, and, even when it contains but little ammonia, exhibits alkaline reaction, exhales ammonia and volatilizes, (Runge). Creasote dissolves in ammonia, even in the cold; and the solution gives off all its ammonia at 100°, (Gorup-Besanez.)

The addition of an equal volume of ammonia to this product of repurification quickly dissolved it, forming a perfectly clear solution, which did not acquire the violet blue color until after standing nearly thirty hours.

For want of time I was not able to carry the purification by fractional distillation, as I should like to have done; still, I consider the product of repurification very nearly pure—much purer, at least, than any I could find in the market.

Upon the addition of ammonia to this acid, as stated above, it was readily dissolved; while, upon Morson's creasote, ammonia had no effect whatever, neither dissolving it nor giving it the blue color that it gave to the common creasote. Merck's creasote gave the same result; it as well as other samples that I have tried being perfectly insoluble in ammonia.

The ammonia used in the experiments given above was the aqua ammoniæ fortior of the U. S. P., sp. gr. 0·900. The aqua ammoniæ U. S. P., sp. gr. 0·960, would answer the same purpose, but a much larger proportion would be required.

After the successful termination of the experiments given above, I have no hesitation in suggesting aqua ammoniæ fortior as a test to distinguish between carbolic acid and creasote; and of leaving its value as compared to other tests now known to the judgment of the pharmacist and chemist.

LEVICO MINERAL WATER.

In a paper published in a recent number of the London Lancet, Levico water has been noticed, and the article having apparently attracted some attention in this country, inquiries have been directed to us in relation to the nature and composition of this water. The *Giornale Italiano delle malattie veneree e delle malettie della pelle*, edited by Dr. G. B. Soresina, and published at Milan, contains in the first volume for 1869, a paper by Dr. G. B. Soresina, entitled *Le acque minerali di Levico (nel Trentino) ferruginose, rameiche, arsenicali*, from which we take the following notes.

The bathing establishment of Levico was erected in 1860, though the mineral springs had been used for several centuries, and acquired much reputation in Italy for the cure of chronic eruptions of the skin, scabies, rheumatism, inveterate arthritis, &c. The spring of the bathing water is in the *caverna del vetriolo*, a short distance from Levico. A chemical analysis has been made of these mineral waters by Dr. Luigi Manetti, professor of chemistry at the technical school of Cremona. The following tables exhibit the composition in 1000 parts of these mineral waters, I being the bathing water taken at the *caverna del vetriolo;* II the same water, taken at the establishment in Levico, and, III, the acidulous drinking water from the *caverna dell'ocra;* IV gives the composition of ten grams of the ochre deposited from the latter.

	I	II	III	IV
Oxide of copper, .	0·0234	0·0234	. . . . .	. . . .
Ferric oxide, .	0·0190	1·1210	. . . . .	9·080
Ferrous oxide, .	2·3210	1·4700	0·2881	. . . .
Oxide of manganese, .	trace	trace	. . . . .	. . . .
“ aluminum, .	0·2527	0·2527	0·0320	0·088
“ magnesium, .	0·0512	0·0512	0·0451	. . . .
“ calcium, .	0·4334	0·4334	0·1088	0·052
“ sodium, .	0·0054	0·0054	0·0043	. . . .
“ ammonium, .	0·0027	0·0027	0·0051	. . . .
Acid arsenious, .	0·0008	0·0008	0·00099	0·004
“ sulphuric, .	3·9410	3·9410	0·5052	0·096
“ silicic, .	0·0610	0·0610	0·0230	0·038
“ carbonic, .	0·2720	0·2720	0·1990	. . . .
Organic matter, .	trace	trace	0·0190	. . . .
Total, . .	7·3836	7·6346	1·23059	9·358

The ochreous sediment contains also traces of crenic and apocrenic acids, and 0·636 of water, with a loss amounting to 0·006.

The results of the analysis No. I and III indicate that 1000 parts of the water contain the following (anhydrous) compounds.

	I	III
Sulphate of copper,	0·0470	.....
Ferric sulphate,	0·0295	.....
Ferrous sulphate,	4·9004	0·4668
Sulphate of manganese,	trace	trace
“ aluminium,	0·8428	.....
“ magnesium,	0·1504	0·1320
“ calcium,	1·0520	0·2630
“ sodium,	0·0120	0·0098
“ ammonium,	0·0105	0·0198
Acid arsenious,	0·0008	0·00099
“ silicic,	0·0610	0·0230
“ carbonic,	0·2720	0·1790
Ferrous oxide, Alumina, with CO_2	....	0·0671 0·0472
Organic matter,	trace	0·0190
Total,	7·3784	1·22769

J. M. M.

EXAMINATION OF CHLORALHYDRATE.

By Charles Rice.

Dr. Hermann Hager, in one of the numbers of his journal (*Pharmaceutische Centralhalle*, April 24, 1873), has drawn attention to the chloralhydrate manufactured by Saame & Co., of Ludwigshafen, which had enjoyed a high reputation for purity, but of which there were then some lots in the market which were far from being pure. Dr. Hager obtained several samples, and examined them with the following results ;

Its solubility was normal, but the solution had an alkaline reaction.

2. The solution, acidulated with HO, NO_5, gave a white cloud with AgO, NO_5. If not acidulated, it gave a white cloud, which speedily turned black.

3. A sample, heated on platina foil, left a white residue, which turned brown at an incipient red heat.

4. The solution decomposed quite rapidly solution of permanganate of potassa.

5. The solution gave a faint cloud with Bohlig's reagent for ammonia (addition to the liquid of about 5 drops of a solution of $HgCl_2$ in 30 parts of HO, will give cloudiness if free ammonia be present; then addition of about 5 drops of a solution of KO, CO_2 in 50 parts HO, will give cloudiness if a salt of ammonia be present).

6. A sample was subjected to heat, the residue ignited, dissolved in a few drops of dilute HO, SO_3 and mixed with alcohol. Crystals of KO, SO_3 were deposited. Another portion of the residue gave the characteristic precipitate with $PtCl_2$.

These results indicate the presence of potassa, formic acid and traces of ammonia. Having myself obtained, by chance, a sample of Saame's chloralhydrate. I subjected it to a careful examination, and have found that my sample at least was not identical with Hager's; for the reactions under 1, 3, 4, 5, 6 gave all negative results. At the same time I subjected a number of other samples to examination, the result of which will be found tabulated below:

There were 9 samples altogether: 2 Merck's, 2 Schering's, 1 Gehe & Co.'s, 1 Saame & Co.'s. 1 Marquart's, 2 unknown. All gave a clear neutral colorless solution, except No. 7, which had a yellow tinge. None gave a fixed residue.

All solutions were made of equal strength, and every reaction was performed under equal circumstances.

Nitrate of silver solution was added both to an acidulated and to a neutral solution, and gave the same result for each sample in every case.

To a layer of HO, SO_3 of 1 inch deep in a test tube was added 1 grm. of the sample, and gentle heat applied to hasten dehydration.

A portion of each solution was acidified with a small quantity of dilute HO, SO_3 and solution of permanganate of potassa added. A safe conclusion from an affirmative reaction in this case can only be drawn if both solutions are cold, dilute and have not long (not over about 30 minutes) remained in contact. Otherwise the permanganate acts upon the chloralhydrate itself, and produces trichloracetate of potassa.

A crystal of KI was dissolved in the solution and solution of starch added.

None of the samples gave out any inflammable vapor.

Samples.	$+AgO, NO_5$	$+HO, SO_3$	$+KO. Mn_2 O_7$	+KI+starch
1. Merck's I.	More cloudy than 3	Acid colorless	Fades instantly	Faint blue
2. " II.	Faint cloud.	"	Retains color.	No reaction
3. Schering's I.	More cloudy than 4	"	"	"
4. " II.	Faint cloud.	"	"	"
5. Gehe & Co,s.	"	Acid considerably colored	"	"
6. Saame & Co.'s	"	Acid slightly colored	"	"
7. Marquart's.	"	"	"	"
8. Unknown I.	Heavy cloud.	"	fades quickly	Blue.
9. " II.	White precipitate	Acid very dark colored	"	"

It would not be surprising if some of the chloralhydrate, which Dr. Hager has examined, were to be shipped to this country. It behooves us, therefore, to be on our guard.

New York, June 15, 1873.

ANEMONE LUDOVICIANA.

By Frank E. Miller.

Extract from an Inaugural Essay.

The above plant was made the subject of the thesis of A. W. Miller, a graduate of the class of 1861—62, who, on account of the small quantity obtained, found only slight traces of the active principle.

About ten pounds of the leaves were obtained from St. Paul, Minnesota, in the neighborhood of which the plant grows abundantly. Of this lot there were only five pounds of fresh leaves, the other five pounds being of the previous year's gathering. The two lots were mixed together, two pounds were placed in a steam still with sufficient water to cover them, and one quart of this distilled off. This was allowed to stand for a short time, and was then shaken up with about one-half fluid-ounce of chloroform, which was separated after remaining in the distillate for several hours, and allowed to evaporate in a current of dry air. A number of feathery crystals were soon formed, which were of a white color. The vessel in which they were crystallized had been closed by parchment paper, but this did not prevent them from becoming discolored after a few days, and changing the color of blue litmus to red, which action was not found to take place while they were white.

About one pint of the expressed juice, to which had been added about three ounces of 95° alcohol, was also treated in the same way, namely, by the addition of water and subsequent distillation. Chloroform was added to the distillate, and, after repeated agitation, the same was separated and allowed to evaporate spontaneously. In a very short time crystals were observed to form, but after a short time the liquid, which was perfectly colorless at first, became dark red, and when the chloroform was entirely evaporated the residue became of a dark brown color, although it retained its crystalline form in the centre. It was strongly acid to litmus, and of a peculiar penetrating odor, very irritating to the nostrils. Before the chloroform had evaporated from this distillate of the expressed juice, a few drops were accidentally spilled on the writer's fingers, but nothing, except the coldness produced by the evaporation of the chloroform, was noticed at the time. A few hours afterwards the finger began to pain, and the skin to assume a red color. Shortly after this a number of blisters appeared, the sense of pain seeming to increase for some time afterwards. It was nearly six weeks before the finger was entirely healed, although it was well protected. Whether this was caused by the poisonous action of the anemonic acid, or whether it penetrated deeper into the skin than other rubifacients, was not possible for the writer to determine.

Some three months after the foregoing experiments had been made, the balance of the leaves (about eight pounds) were subjected to distillation, and treated with chloroform in the same manner as previously described. No crystalline body was formed after the evaporation of the chloroform, and only a dark amorphous residue of an acid character remained. From this it was supposed that only from the fresh leaves or juice the anemonin could be obtained, as there was no trace of crystalline matter in the leaves that had been kept five or six months.

The semi-crystalline matter left after distilling the expressed juice could not be redissolved in chloroform. There seemed to be a slight action (the chloroform becoming somewhat discolored), but the mass retained its shape and appearance.

Particular attention was given to detect vegetable albumen, which, however, could not be found. About two ounces of the leaves were treated with one pint of cold water, and allowed to macerate for two days; a portion of this was heated to the boiling point with no perceptible results. Nitric acid and corrosive sublimate were each tried, but neither produced a precipitate, nor was any effect produced by the addition of tannin.

Liquor potassæ and sulphate of copper gave proof of grape sugar, both in the expressed juice and in the aqueous extract. A green color was produced by the addition of sesquichloride of iron to both the aqueous and alcoholic extracts.

The alcoholic preparation, which was made of the strength of four ounces to the pint, was found to contain, after evaporation, two resins, one soluble in ether, of an oily character, leaving no stain on heated paper, and the other soluble in water, giving a precipitate with acetate of lead and also with subacetate of lead, but not with the latter after the action of neutral acetate.

Pectin was indicated by the addition of a hot solution of carbonate of soda to two ounces of the leaves, allowing this to digest, and, after straining, adding some dilute sulphuric acid, by which a yellowish gelatinous mass was precipitated, the liquid becoming somewhat gelatinous itself.

The therapeutical effects of this plant are the same as those of the European *Anemone Pulsatilla* and *Anemone pratensis* Dr. W. H. Miller, of St. Paul, Minnesota, has used it with decided success in several chronic diseases of the eye, such as cataract, amaurosis and opacity of the cornea. It has also been given with good results in cutaneous eruptions and in secondary syphilis. These facts were mentioned in the former thesis on this subject, and Dr. Miller has since then (1863) used the plant medicinally with considerable success.

BENZOIN ODORIFERUM, *NEES.*

By J. Morris Jones.

Extract from an Inaugural Essay.

The common names of this indigenous shrub are spice wood, spice bush, fever wood, fever bush, Benjamin bush, wild allspice, snap-wood, spice berry, allspice bush.

The small branches are used as an aromatic, stimulant tonic in the forms of infusion, tincture and fluid extract. The proportions of the drug in these preparations are—infusion, two ounces to the pint of boiling water; tincture is two ounces to pint of diluted alcohol, and the fluid extract is so made that one fluid-ounce represents one troy-ounce of the drug. It is said to be used as an agreeable drink in low fevers and in intermittents, and also as a vermifuge.

According to Dr. Drake, the oil of the berries is used as a stimulant. The infusion has an aromatic and astringent taste, and the odor of the bark. The tincture is of a brownish color and has an aromatic and astringent taste and a faint odor of the bark.

I. Four troy-ounces of the bark, exhausted with strong alcohol, gave a tincture of a bright green color, leaving on evaporation an extract which had a dark green color. This extract was treated with different solvents; first with sulphuric ether, which took up the coloring matter, leaving an extract of a dark brown color. This extract was found to be insoluble in cold benzin and sparingly soluble in hot benzin, precipitating again on cooling; it is likewise insoluble in chloroform and bisulphide carbon. The remaining extract treated with water imparted to it a brownish color, and upon evaporation the solution left but a small residue. The portion insoluble in water was then dissolved in alcohol, which gave a solution of a brownish color. Acetate of lead produced a flocculent precipitate, and the filtrate was not affected by subacetate of lead. The lead was separated by treating the solution with sulphuretted hydrogen, and the clear filtrate upon being evaporated left a very small residue.

II. Four troy-ounces of the bark were exhausted with ether by maceration and percolation and yielded a tincture of a green color. This was evaporated to a soft extract, which was of a dark green or almost black color and had a very strong odor of the drug; upon standing, this extract separated into two layers, one being of a greenish color and the other clear: the latter imparted to paper a greasy stain, which, upon being heated, disappeared. A portion of the extract was dissolved in ether and thrown upon water; by gradually heating the water to evaporate the ether, there were obtained small globules which were found to be of a resinous character, and an oily layer which, when separated, was found to have a strong odor of the drug and an aromatic taste.

The resinous matter was treated with alcohol, which dissolved the greater portion of it. The insoluble portion having been separated by filtration and the alcoholic solution evaporated, a resin was obtained which was soluble in ether and partly soluble in chloroform and benzin. It was somewhat lighter in color than the portion insoluble in alcohol, and when dried had a brittle and resinous fracture, while the insoluble portion broke somewhat like wax, neither of them having odor or taste.

III. Four troy-ounces of the bark were boiled with water, and yielded a decoction of a brownish color and an aromatic, somewhat astringent taste. A portion being tested by iron and gelatin gave evidence of tannin. From another portion the tannin was removed by acetate of lead: the filtrate, on the addition of subacetate of lead, gave no precipitate; this solution was treated with sulphuretted hydrogen to precipitate the lead, and after concentration by evaporation the solution indicated the presence of sugar by Trommer's test. Starch was also found to be present by solution of iodine.

IV. Sixty troy-ounces of the bark were ground and after maceration for twenty-four hours with water, distilled, yielding an oily layer of a strong aromatic odor floating upon the aqueous distillate, which did not react upon red or blue litmus paper.

The oil obtained by distillation and the oil obtained from the etherial extract were very similar, that obtained by distillation having a stronger odor; both oils when tested were found to belong to the cinnamyl series; the addition of bichromate of potassium and sulphuric acid, or of permanganate of potassium producing the odor of bitter almonds.

V. Twenty grams of the air-dry bark were incinerated; the weight of the ashes obtained was 0·59 gram, the percentage being 2·95; of this amount distilled water dissolved ·119 gram. The ashes contained oxide of iron, lime, potassa, soda, hydrochloric and carbonic acids, and were free from sulphuric and phosphoric acids. The organic constituents were found to be tannin, resin, wax, starch, sugar, chlorophyll, albumen and volatile oil containing cinnamyl-compound.

CORTEX AMYGDALI PERSICÆ.

By J. Howard McCrea.

From an Inaugural Essay.

The author collected the peach tree bark in the latter part of May, and, drying it in the air, found it to lose 33⅓ per cent. By analysis he proved it to contain tannin, albumen, starch, gum, lignin (about 50 per cent.), hydrocyanic acid (in the cold infusion), resin soluble in alcohol and insoluble in ether, fat, extractive and a potassium salt. The bitter principle was not isolated: it appears to be different from phloridzin, as the author failed to obtain it by the process for this principle. A tincture representing two troyounces in the pint was prepared by percolation, and used by Dr. H. D. W. Pawling, King of Prussia, Pa. Concerning its medicinal properties, the author says:

From the large amount of tannic acid found in the bark, I think it might class very favorably with some of the officinal astringents, although Dr. Pawling did not use it as such, but mainly found its virtues to reside in the prussic acid. I here will add his opinion concerning its medical virtues:

I have examined your preparation, and find, by the use I have made of it, that it possesses antispasmodic, stimulant and sedative properties.

The first case in which I used it was that of Mrs. W., who was supposed to be laboring under disease of the heart. She had been treated by several physicians, but without any permanent relief. On a visit to some of her friends she was taken with one of her old attacks. I saw her almost immediately, and found her cold, pulse at one hundred and ten, sighing, and exhibiting every symptom of nervous prostration. I gave her a teaspoonful of your tincture in a little sweetened water, repeating the dose in an hour, then again in two hours, and so on continuing. She was relieved after the second dose, and after repeating for a few times she became so much improved that she was able to return home the next morning. Since then I have frequently heard from her, through her brother, who says she now immediately receives relief from a dose or two, and I have been supplying her ever since.

The next case was a delicate girl, who had been suffering some time from chorea, but who had in a measure recovered from the irregular muscular movements, but still remained distressingly nervous. I gave her the same dose as in the case of Mrs. W., at more distant intervals, which appeared to benefit much, and in conjunction with iron made a permanent cure.

The next case was a gentleman of nervous temperament, complaining of twitching and nervous spasms. I placed him under the use of your tincture, which he has been using for some length of time and still continues to use with great benefit, and, as he expresses himself, will soon make a cure.

In pertussis, or whooping cough, I think it exhibits some virtue. I have used it in conjunction with senega, and I think with considerable relief.

In the bronchial affections of infants I have seen it do considerable good in conjunction with senega or ipecac. In one case particularly, a child of Mrs. L., a poor puny child that contracted catarrh a few weeks after birth, I had tried all the usual remedies for this ailment, until the poor child was reduced to an extremity. After receiving your tincture I commenced to try it in conjunction with squill and senega. After continuing the combination for some time I had the pleasure of seeing the child recover.

I should have liked much to have further experimented with your preparation, but running short and no fresh supply on hand, I was compelled to give over; butin the cases of the character I first mentioned I think it will prove a valuable adjunct.

COMPTONIA ASPLENIFOLIA.

By Richard T. Chiles.

Extract from an Inaugural Essay.

All parts of the plant possess a resinous and spicy odor, which is increased when the plant is rubbed, but the leaves and young branches are the parts which are used in medicine.

Sweet fern is esteemed in domestic practice as a mild astringent tonic, possessing considerable alterative properties, and has been used with great success in diarrhœa, dysentery and the bowel complaints, which are so prevalent among children during the summer months.

Preparations: Decoction, Infusion, Syrup and Fluid Extract.—The decoction is made by boiling an ounce of the leaves in a pint and a quarter of water to a pint, and straining; of this preparation one or two fluid-ounces may be given two or three times a day.

An infusion made in the proportions of a half ounce of the leaves to a pint of boiling water is frequently used.

A fluid extract, prepared by the following formula, yields a preparation which contains the virtue of the leaves in a concentrated form, and which has many advantages over either the decoction or infusion.

Take of—

Sweet fern leaves, in fine powder, .	16 troy-ounces.
Diluted alcohol, ...	a sufficient quantity.

Moisten the powder with three fluid-ounces of diluted alcohol, pack it firmly in a cylindrical percolator and gradually pour diluted alcohol upon it until twelve fluid-ounces are obtained; set this aside, and continue the percolation until two pints have been obtained or until the powder is exhausted. Evaporate this by means of a water-bath to four fluid ounces, and mix it with the reserved tincture. The dose of the fluid extract is one-half to one fluidrachm.

The syrup is prepared by mixing four fluid-ounces of the fluid extract with twelve fluid-ounces of syrup.

Chemical Examination.—A portion of the leaves was exhausted with cold water. The resulting infusion was of a light red color and had a bitterish and astringent taste, with very little of the odor of the leaves. When boiled and allowed to cool, it deposited a flocculent precipitate, indicating the presence of albumen.

The infusion, when treated with a solution of sulphate of copper and an excess of solution of potassa, gave, on being boiled for a short time, a reddish precipitate of suboxide of copper. This test indicates the presence of sugar.

Another portion of the infusion gave a greenish-black color with a solution of sesquichloride of iron, a white curdy precipitate with sulphuric acid, and a slight precipitate with gelatin. After digesting the infusion with an excess of gelatin for twenty-four hours and filtering, the infusion gave no precipitate with sulphuric acid, and on the addition of solution of sesquichloride of iron gave a greenish-black color, which was entirely dissipated on the application of heat.

Four troy-ounces of the leaves, when exhausted with cold water and the resulting infusion being evaporated, yielded about thirty per cent. of a dark brown extract. Two hundred and forty grains of this extract, after having been submitted to the action of alcohol and ether successively, left about thirty-five per cent. of dark brown extractive matter. The alcohol, with which the extract had been exhausted, on being evaporated yielded a substance of a pale brown color somewhat translucent, hard and brittle. It is soluble in water and officinal alcohol, but is insoluble in absolute alcohol, ether and oil of turpentine. Its aqueous solution, on being agitated, forms a lather like a solution of soap, and in many of its properties it resembles saponin obtained by a similar process from *Saponaria officinalis.*

Four troy-ounces of the leaves were exhausted with alcohol, and the alcohol distilled off from the tincture until it was reduced to a syrupy liquid. This was thrown into a large bulk of water, and the precipitated resin collected on a filter. The resin, after having been well washed with cold water, was dissolved in alcohol, and the solution evaporated spontaneously. The resin, as thus obtained, is of a dark green color, very friable, and has the peculiar odor of the leaves highly developed. Its taste is bitter and camphorous. It is soluble in alcohol, ether and alkaline solutions. On the addition of an acid to the latter solution it is precipitated unchanged.

The distillate obtained by distilling water twice from fresh portions of the leaves was agitated with ether, the ethereal solution drawn off and allowed to evaporate spontaneously. A small quantity of an oily liquid was obtained, which communicated a greasy stain to bibulous paper, disappearing entirely on the application of heat.

A portion of the leaves, which had been exhausted with alcohol, was now treated with ether. The ethereal liquid was evaporated to a small bulk and thrown into water, when a small amount of fatty matter separated and floated on the surface of the water. It was absorbed by bibulous paper, to which it communicated a greasy stain, that was not dissipated by the application of heat. During the evaporation of the ethereal liquid a small quantity of green waxy matter was deposited on the sides of the evaporating dish.

A quantity of the leaves after having been exhausted respectively with cold and boiling water, alcohol, ether, diluted acids and alkaline solutions, left a dark brown lignin, which was converted by concentrated sulphuric acid into a pasty mass soluble in water. The leaves, when incinerated, yield about five per cent. of ash, in which potassa, lime, oxide of iron, silica, sulphuric, muriatic and carbonic acids were found.

The organic constituents are albumen, sugar, tannin, gallic acid, gum, extractive, resin, volatile oil, fatty and waxy matter, lignin and a substance having properties analogous to saponin.

ON TINCTURE OF RHUBARB.

By J. B. Moore.

This tincture, on account of its tendency to deposit on standing an abundant precipitate, has always been a source of annoyance to pharmacists. This instability is not only pharmaceutically objectionable, but is especially so in a medicinal point of view, as the precipitated matter has been ascertained to contain a portion of the active principles of the drug. Chrysophanic acid, which is supposed to be either one of the elements of activity of rhubarb, or intimately associated with its medicinal virtues, has been found to be among the principles usually contained in the precipitated matter. Hence it is important that some means be devised to render the tincture more permanent, and to prevent this deposit from occurring.

To myself this imperfection in the officinal tincture of rhubarb has been annoying, not only on account of my consciousness of the fact that this precipitation depletes the preparation of a portion of its medicinal power, and thus detracts from its reliability and efficiency as a medicinal agent, but also because of its rendering the tincture, not unfrequently, unsightly in appearance, and causing it to be cloudy by the disturbance of the sediment when the tincture is decanted in the hurry of dispensing. I, therefore, thought that a little time could be profitably spent in some experiments with the view of so amending the officinal process as to overcome the difficulty referred to; and as my efforts in this direction have been quite satisfactory, I have concluded to give the result for the benefit of others, and here present the following modification of the officinal formula, which yields a tincture that will keep with but slight precipitation:

℞.	Pulv. Rhei, No. 40,	℥iij, troy,
	" Cardamomi. No. 40.	℥ss, "
	Glycerinæ,	f℥iv fʒij.
	Alcohol. fort..	f℥xvij,
	Aquæ,	f℥xij fʒvj,
	Alcohol. dil.,	q. s.

Mix the glycerin, alcohol fort. and water. Moisten the powders, previously mixed together, with the mixture; pack the moistened mass in a glass jar or other close vessel, and let it stand for twenty-four hours. Then rub the powder through a No. 20 sieve, and pack it in a glass funnel prepared for percolation, and gradually pour upon it the remainder of the menstruum, and when it has all been absorbed continue the percolation with diluted alcohol until thirty-two fluidounces are obtained.

As a preventive measure to obviate the tendency to deposit in this, as well as in many other tinctures and also fluid extracts, it will be well to have the receiving vessel perfectly dry or else rinsed out with a portion of the same menstruum which is to be used in the percolation, and the percolate after a half fluidounce or ounce has passed should be occasionally agitated. This last simple precaution will not infrequently prevent, at least in a measure, the tendency to deposit which such concentrated solutions might otherwise have.

If the percolation is well managed in making fluid extracts and some tinctures, the first portions of percolate which pass are usually so dense and so supersaturated that, if allowed to remain long in this condition, they will in a short time begin to let fall a portion of their excessive charge, and after this process is once established there is no telling where it may end. And such solutions, when long exposed in this supersaturated condition, become a helpless prey to oxidation and other injurious atmospheric influences. More especially is this the case when the percolate contains tannin, starch and other proximate principles, which, when thus associated together, are liable, even at ordinary temperatures, to undergo changes unfavorable to the stability of the finished product. Hence the importance of attention to this *apparently* trivial matter.

The frequent agitation of the percolate during the process of percolation intermixes the denser portions with the successive and less densely saturated portions as they pass. It not unfrequently happens that, when percolation is slow, several days are consumed before the completion of the process, so that the denser portions, if allowed to remain undisturbed, are most sure to deposit more or less matter, which although it is frequently very readily redissolved, is not so likely to remain afterwards in permanent solution. At least this has been my experience while carefully and closely observing very frequent manipulations of this kind.

There are obscure chemical and molecular changes which may occur under such circumstances, as the result of oxidation and other influences, in consequence of the nascent condition of the vegetable principles, and these changes but few could divine or explain. It therefore behooves usall to adopt every expedient in our manipulations that may suggest itself, to guard against the possibility of such results. After the percolation in any instance has sufficiently advanced that the solid matter extracted is mixed with sufficient of the menstruum to hold it in solution, then the agitation of the percolate be no longer continued, and the superstratum which accumulates may serve a good purpose, in some instances, in protecting the stronger portions beneath from the action of the air during the exposure necessary to complete the process.

The deposit occurring in the officinal tincture of rhubarb very often not only covers the bottom of the bottle with a deposit of from a quarter to a half inch in depth, but the sides of the bottle most exposed to the direct light also receive their share of coating.

The above formula does not entirely remedy the defect, but it so nearly accomplishes the object as to render the tincture as prepared by it a much more satisfactory preparation. The deposit accumulating in a quart of the tincture made by this formula on the 5th of last February is at this time so slight when compared with that usually occurring in the officinal tincture, that it really appears, practically, of but little consequence. The tincture, made as above directed, does not usually manifest the slightest evidence of deposit until about three weeks after it is prepared, and then the precipitation proceeds very slowly and very sparingly, while the officinal tincture begins to throw down a copious deposit in a few hours after it is made. I tried in several experiments increasing the proportion of glycerin to six fluidounces, but with no advantage whatever—in fact with less satisfactory results.

And, furthermore, the menstruum was not so satisfactory to work with, and the drug was not so easily nor so thoroughly exhausted as when the proportions in the formula above were adhered to. It has been suggested to increase the alcoholic strength of this tincture, in order to prevent the deposit, but this I deemed objectionable, as the spirituous strength of the preparation should not be augmented, if possible to avoid it; in fact, this property should be decreased in almost all tinctures to the *minimum* consistent with their integrity and permanence. Glycerin being so excellent a solvent for rhubarb, and so eligible both therapeutically and pharmaceutically, that I at once summoned it to my aid in forming a menstruum that would not only exhaust the drug thoroughly, but at the same time hold the extracted matter in permanent solution, and find it, practically, to answer the purpose almost fully.

The menstruum I have employed is much more satisfactory to use than the diluted alcohol of the officinal formula, as the percolation is more easily accomplished with it; for, being less aqueous than the latter, there is less tendency or likelihood, in case the powder is accidentally packed too tightly, for the percolation to cease or to proceed too tardily.

When rhubarb is very dry, as it often is, it powders so easily that it is almost impossible, unless the greatest care be exercised, to get it in anything like a uniform moderately coarse powder, as continued contusion and rubbing in the mortar very quickly reduces the greater portion to a *very fine powder* before the remaining portion is sufficiently fine to pass the sieve, and as a consequence the powder is likely to be too fine and irregular. This result can, in a measure, be avoided by sieving the powder very frequently during the process. Contuse and rub it for a few minutes only at a time, and then throw it on the sieve, and the portion which refuses to pass return to the mortar to be again treated in like manner, and thus repeating the operation until the whole is reduced to the requisite degree of fineness. In this manner I have generally succeeded in obtaining a very uniform powder.

It will be observed that the quantity of menstruum proper, *i. e.*, mixture of glycerin, alcohol fort. and water, directed in the formula, is slightly in excess of the quantity *actually required* to yield the desired quantity of the tincture. This is done in order to afford a stratum between the amount of the menstruum *proper* required to yield the thirty-two fluid-ounces of tincture of the formula, and the diluted alcohol with which the percolation is completed. This prevents any admixture of the latter with the former, and thus insures to the finished product a fixed and definite constitution. This apparently trivial, though really important circumstance, is often overlooked by many in framing formulæ for tinctures, fluid extracts, etc.

Philadelphia, Pa., June, 1873.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Citric acid from whortleberries, Vaccinium vitis-idæa, Lin.[*]—Dr. Græger expresses the juice, mixes the residue twice with water to dissolve the remaining acid, and expresses. A third maceration does not pay, unless the expressed liquid is used for a fresh portion of berries. The liquids are mixed and a solution of glue is added until the tannin is precipitated. The clear filtrate is assayed with normal alkali to determine the amount of carbonate of calcium necessary for the complete neutralization of the acid, and decanted after carbonic acid ceases to be given off. The liquid is heated to boiling in a copper kettle with continued agitation; after about ten minutes the supernatant liquor is syphoned off, the precipitate washed upon a strainer with boiling water, to remove coloring matter, and dried. By incineration of a portion, the amount of lime contained in it is ascertained, and from it the sulphuric acid is calculated necessary for the decomposition of the precipitate. The citrate of calcium is then decomposed by digesting it for several hours with the acid, previously diluted with ten times the quantity of water; the precipitated gypsum is collected, pressed and exhausted by mixing with water and pressing. The clear, faintly reddish solution is decolorized with animal charcoal, concentrated, filtered to remove gypsum, crystallized, and the crystals purified by recrystallization, when they are obtained perfectly colorless.

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[*] See Analysis in Amer. Journ. Pharmacy, 1871, p. 543.

In two experiments the yield was over one per ct., and the cost, exclusive of labor, about one-fourth of the commercial acid. The filtrate from the citrate of calcium contains sugar (five per cent. of the berries used), which may be utilized by converting it into vinegar, or into alcohol, in which latter case the malate of calcium may likewise be obtained.—*N. Jahrb. f. Pharm.* 1873, *April*, 193–197.

Cleaning of Bottles. A. Eckstein recommends to clean bottles which contained solutions of resins, by using first lye and rinsing them finally with alcohol. If they contained petroleum, oil of turpentine, &c., the volatile oil is destroyed with some strong sulphuric acid, and the bottle placed under a hydrant, when the last traces of the volatile oil will be readily removed.—*Ibid.*, 241.

A new anilin red is obtained, according to M. F. Hamel, by adding to 25 or 30 grains of anilin contained in a glass flask a few drops of chloride of sulphur, and shaking continually to prevent the carbonization of the anilin. After five or ten minutes the mixture is dissolved in strong acetic acid, filtered and carefully evaporated, when a brilliant almost black body is obtained, which dissolves in acetic acid, ether and alcohol, with a beautiful color resembling fuchsin.—*Pharm. Cent. Halle*, 1873, No. 17.

To fasten leather upon metal, F. Sieburger recommends the process proposed by the late Prof. Fuchs: one part of crushed nutgalls is digested six hours with eight p. distilled water, and strained. Glue is macerated in its own weight of water for twenty-four hours, and then dissolved. The warm infusion of galls is spread upon the leather, the glue solution upon the roughened surface of the warm metal, the moist leather is pressed upon it and then dried, when it adheres so that it cannot be removed without tearing.—*Ibid., No.* 19, *from Polyt. Notizbl.*

A new extract of meat. Neues Jahrb. f. Pharm. for April contains an extract from a paper by Prof. Leube, of Jena, published in Berl. klin. Wochenschr., 1873, p. 195, in which the following directions are given: 1000 grams of beef free from fat and bones are cut very fine, mixed in a porcelain vessel with 1000 grams of water and 20 grams of pure muriatic acid, and then boiled in a Papin's pot for ten or fifteen hours, the mass being occasionally stirred in the beginning. After the time indicated, the mass is triturated in a mortar until it acquires the appearance of an emulsion. It is then again boiled in the Papin's pot for fifteen or twenty hours, then almost neutralized with pure carbonate of sodium, evaporated to the consistence of mush, and divided into four parts.

Dr. R. Mirus has modified the above process somewhat (Pharm. Zeitung, No. 37); 250 grams beef suitably prepared as above, are introduced into a strong bottle and agitated with water until all lumps have disappeared; the muriatic acid and remainder of water are added, the bottle corked and the stopper wired. Five or six of such bottles are then boiled in a high pot for fifteen hours; each bottle is then well agitated and the boiling continued for fifteen hours more. The preparation may also be made in a suitable steam-boiler by placing the meat in a covered porcelain vessel and boiling for the length of time indicated. The object is to alter the muscular fibres under pressure and the conditions stated, until they are as nearly as may be possible disintegrated.

In the liquid state the preparation soon spoils unless preserved by Appert's method; it may, however, be evaporated in a steam-bath to dryness, when it will keep well in closed bottles, and should, when prescribed, be softened by the addition of warm water. It is highly recommended in various affections of the stomach when the mucous coating requires to be protected from irritation, in reconvalescense from typhus, etc., and may be combined with broth or Liebig's extract of meat, or milk and cracker may be used alternately.

Preparation of chromic alum. Prof. A. Lielegg dissolves 29·5 parts bichromate of potassium in a warm mixture of 39 sulphuric acid and the requisite quantity of water; when cold, 38 p. oxalic acid are added in small portions, carbonic acid is given off, and the chromic alum obtained on spontaneous evaporation.—*Dingler's Polyt. Journ.*, 1873, *Feb.*, 321.

Purification of tallow. H. Trendlen states that tallow purified in the manner stated below is almost free from odor, keeps well for a long time, and is well adapted for culinary and perfumery purposes, for ointments, plasters, etc. Fresh tallow is fused in boiling water, while hot pressed through a close linen strainer, together with the water, then boiled with the latter and carefully skimmed. After cooling, the water is removed by pressure, the tallow again fused and preserved in well-covered earthen vessels.—*Ibid., March*, 516.

Ammoniacum.—An inquiry of some interest has been started by Mr. D. Hanbury into the original source of ammoniacum. Dioscorides, in the first century, describes it as coming from "the parts about Cyrene," and near the temple of Ammon, from which it may have derived its name. Some ammoniacum still reaches this country at times from Morocco, and is probably of the same botanical origin as that first described by Dioscorides and others. This gum, however, is very inferior to, and indeed differs from the ordinary Persian ammoniacum, so much so, that certain writers, Pereira, Guibourt, and others, have concluded that the ammoniacum referred to in earlier times was not the same as we know, or that it had been erroneously attributed to Africa. Mr. Hanbury, however, has discovered that a better quality, more nearly corresponding to the usual ammoniacum, is obtained in Morocco, and that it is both consumed in the Empire and finds its way to Egypt and Arabia. This traffic he believes to have been very ancient, and as London brokers now call the Moroccan product "ammoniacum," there does not seem to be any matter for astonishment that the ancient writers should have confused the two gums. In Jackson's account of the Empire of Morocco he describes a sort of ammoniacum produced by a giant fennel called *Feshook*. The gum exudes from the stem in consequence of the puncture of a beetle, and, falling to the ground, becomes contaminated with earth, for which reason it does not suit the London market; but it is used in all parts of the country for cataplasms and fumigations. Following up Mr. Hanbury's inquiries, Mr. John Moss has made a chemical examination of the African ammoniacum, and shows the results in the following table, which, for comparison, he places side by side with an analysis of Persian ammoniacum by Hagen:—

African Ammoniacum. (Moss.)	
Resin, ...	67·76
Gum, ...	9·014
Water and Volatile Oil,	4·29
Bassorin and insoluble matter, ...	18·85
	99·914

Persian Ammoniacum. (Hagen.)	
Resin, ...	68·6
Gum, ...	19·3
Gluten, ...	5·4
Extractive, . . .	1·6
Sand, ...	2·3
Volatile Oil and Water,	2·8
	100·0

—*Chemist and Druggist—Pharm. Journ. March* 22, 1873.

In a subsequent paper published in the Pharm. Journ., March 29, Mr. J. Moss proves experimentally that ammoniacum contains no sulphur.

False China Root. At a public sale of drugs, E. A. Webb met with an article named China root, which in reality was that curious fungoid production, Pachyma cocos, which has been described by Mr. Hanbury as resembling large, ponderous, rounded tubers, having a rough blackish-brown bark-like exterior, and consisting internally of a compact mass of considerable hardness, varying in color from cinnamon brown to pure white. It is stated that this was the first time it appeared in commerce in England.—*Pharm. Journ., March* 29.

Origin of Myrrh. Among the plants brought by Ehrenberg from his travels in Asia in 1826, was *Balsamodendron myrrha*, Nees, from which myrrh has since been supposed to be collected, until some years ago the late Prof. Berg found in Ehrenberg's herbarium a specimen of a different species labelled by Ehrenberg that he had collected myrrh from it; Berg named the plant *Balsamodendron Ehrenbergianum.* Daniel Hanbury now calls attention to our deficient knowledge of the source of myrrh, which is asserted to be produced in no less than four districts, namely, 1, in the country about Ghizan on the eastern shore of the red sea; 2. on the southern Arabian coast eastward of Aden; 3, in the Somali country south and west of Cape Gardafui, and, 4, in the region west of the gulf of Aden, lying between Tajura and Shoa, including Harar, to the south-east. There are certainly three varieties of myrrh which may well be derived from distinct species. Numerous well preserved specimens of the trees, including leaves, flowers, fruits and the exudation are needed to solve this question.—*Ibid., April* 19.

ON A NEW VARIETY OF OPIUM.

By P. Carles.*

For some time past a new kind of opium has been met with in commerce which is said to come from Persia. The sample obtained by the author was in conical cakes, weighing about 440 grams, which had been covered with poppy leaves, of which a few remnants remained. and were free from rumex fruits. Its odor is not narcotic like that of Smyrna opium, but strongly resembles that of green coffee; when heated, however, it gives off an odor reminding of chocolate. It is soft like ordinary opium, and contains 5·60 per cent. of moisture. It has a light color, which does not deepen on exposure; examined by the eye or the magnifier, it is quite homogeneous. It mixes readily with cold water without requiring the malaxation necessary for the officinal kind. The solution is slightly colored.

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* Translated from Journal de Pharmacie et de Chimie, 1873, Juin, 427–429.

While Smyrna opium yields generally 49 per cent. of aqueous extract, this new kind yields 53. It presents, however, the following remarkable quality: when about two-thirds of the water have been evaporated in the water-bath, crystalline crusts are formed which successively fall to the bottom, and the liquid will finally, after cooling, appear as a crystalline mass, from which, by taking it up with water, 1·10 per cent. of pure narcotina was separated.

The assay of this crude opium gave, by Fordos' method,* as a mean of two experiments, 8·40 per cent. of morphia and 3·60 per cent of narcotina; the amount of morphia is therefore less than is required of Smyrna opium.†

The readiness with which this opium dissolves in water, its deliquescence in the atmosphere, etc., suggested a falsification with honey or glucose. It is not easy to establish this, since Mr. Magnes Lahens has shown it to be a normal constituent, at least, of Smyrna opium. Both kinds reduce readily solutions of copper; but is this reduction due exclusively to glucose? Fermentation appeared to the author to be the only way to decide this question, in view of the multiplicity of constituents, a certain number of which, like glucose, reduce the copper solution. This has been proven by parallel experiments made with Barreswill's solution and fermentation. Smyrna opium gave some bubbles of carbonic acid, and this so-called Persian opium several cubic centimetres;* but there was no uniformity between these results and those obtained by Barreswill's solution, which corroborates the above expressed opinion that alkaline copper solutions are unfit for determining correctly the glucose in opium, and that recourse must be had to fermentation. In this case the so-called Persian opium appeared to contain an abnormal quantity of glucose; but it is difficult to establish it by reliable points of comparison.

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* It is well known that it takes several days for the morphia to precipitate completely; the precaution was observed by the author, who observed in this case that if only one-half of the required quantity of ammonia is used, nearly all the narcotina will soon crystallize out, leaving the morphia in solution, which is subsequently precipitated. This behavior is particularly important to manufacturers of morphia who may happen to use this opium.

† This so-called Persian opium is certainly of medium quality. As far as the author's information goes, Smyrna opium, of 10 per cent. morphia, is not the commonest in the market. But since the Codex has adopted that standard, the author thinks that this opium might be used in place of Smyrna opium by increasing the prescribed quantity one-fifth.

This opium differs considerably from the Persian opiums described by Guibourt,† as coming in sticks wrapped in paper and weighing about 20 grams, and as containing 4 per cent. of morphia, or, according to Merck, even one per cent. and 80·55 of extract. Guibourt states also that its solution separates, on evaporation, a white crystalline deposit, but he has not established its nature.

ON TWO NEW REMEDIES AT THE VIENNA EXPOSITION.

By W. Hildwein.‡

Among the large number of plants indigenous to the Philippine Islands, two species of trees have recently attracted considerable attention: they are *Echises scholaris*, nat. ord. Apocynaceæ, and *Garcinia mangostana*, nat. ord. Guttiferæ. The former is very common in the province of Batangar, Island of Luzon, and its bark has been used by the natives, under the name of *dita*, as a remedy in all kinds of fever. G. Gruppe, apothecary in Manilla, obtained from it an uncrystallizable, very hygroscopic bitter principle, which he named ditaïn, and which has been employed by Prof. Dr. Miguel Zina, the chief physician of the province of Manilla, in the hospitals under his supervision. He found that ditaïn is not only a complete substitute for quinia, but is even superior to it in not producing the unpleasant effects sometimes observed from the latter. It is given in the same manner and doses as quinia, and is prepared by a process similar to that of the latter alkaloid; it has also been used as a tonic in a number of cases with success. 100 grams of bark yielded two grams of ditaïn, 0·85 sulphate of calcium and 10 grams of extractive, which is without any effect. The trees yield, without being injured in their growth, a large quantity of bark, 50 kilograms of which cost in Manilla about 30 francs, so that a kilogram of ditaïn would cost in Europe about 160 francs, or less than half the price of quinia.

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* One c.c. carbonic acid indicates 3·88 m. of glucose.

† Drogues simples, iii, 657.

‡ Translated from Zeitschrift d. allg. Oesterr. Apoth. Ver., 1873, p. 249.

The other new remedy is extractum antidysentericum, prepared from the pericarp of *Garcinia mangostana*, which, some years ago, was introduced into Europe for tanning purposes. *Garcinia* occurs frequently in Madras, Cochinchina and the Philippine Islands. Heretofore it was used in the form of decoction. G. Gruppe prepared from it an extract which has been introduced there into all the hospitals, and has been employed in the barracks and prisons as well as in private practice. It appears to be a sure remedy for rapidly and effectually curing dysentery, chronic diarrhœa, catarrhs of the uterus, bladder and urethra; in fact, in all cases in which astringents are indicated. It is given in the form of pills or as syrup, it being readily soluble, and in the latter form particularly adapted for children. Its price in Europe would be about 21 or 22 francs.

SELECTED FORMULAS FROM PHARMACOPŒA GERMANICA.

By the Editor.

(Concluded from page 263 of last number.)

Tartarus boraxatus s. Kali tartaricum boraxatum s. Cremor tartari solubilis. Borax, 2 p.; distilled water, 20 p. Dissolve and add 5 p. purified cream of tartar. Agitate to dissolve, filter, evaporate to dryness, and powder.

The tinctures are made by maceration, at a temperature of 15 to 20° C., or by digestion, temperature 35 to 40° The officinal alcohol, spiritus, has a specific gravity of 0·830 to 0·834, the diluted alcohol a spec. grav. of 0·892 to 0·893. In nearly all cases the tinctures are stronger in alcohol and often less liable to precipitate than the corresponding ones of the U. S. Ph. The proportions are mostly 1 of material to 5 or 10 of menstruum.

Tinctura Aloes composita s. Elixir ad longam vitam. Aloes, 9 p.; gentian, rhubarb, zedoary, saffron, agaric, of each 1 part; alcohol of 0·892 sp. gr., 200 parts. This is a simplified formula for a very popular German remedy.

Tinctura amara. Orange berries, centaury, gentian, of each 2 p.; zedoary, 1 p.; alcohol, ·892 sp. gr., 35 parts.

Tinctura aromatica. Chinese cinnamon, 4 p.; cardamom, cloves, galangal, ginger, of each 1 p.; alcohol, ·892 sp. gr., 50 p. Digest for a week.

Tinctura aromatica acida. Made like the preceding, except that the alcohol is mixed, before the digestion, with 2 parts of sulphuric acid.

Tinctura Chinæ composita s. Elixir roborans Whyttii. Pale cinchona, 6 p.; orange peel, gentian, each 2 p.; Chinese cinnamon, 1 p.; alcohol, ·892 sp. gr., 50 p.

Tinctura Chinoidini. Chinoidin, 2 p.; alcohol, 17 p.; hydrochloric acid, 1 p. Dissolve. This mixes with water without being precipitated.

Tinctura ferri pomata. Ferruginous extract of apples, 1 p.; vinous cinnamon water, 9 parts. Dissolve.

Tinctura Iodi decolorata. Iodine, hyposulphite of sodium, and water, each 10 parts. Digest until dissolved; add ammoniated alcohol, 16 p., and alcohol, 75; keep in a cool place for three days and filter. It has a slightly ammoniacal odor.

Tinctura Opii crocata corresponds to Vinum opii, U. S. P., except that it contains 6 drachms of saffron to the pint.

Tinctura Opii simplex is weaker in alcohol but stronger in opium than the tincture of the U. S. P. It is made from powdered opium, 4 p.; alcohol, sp. gr. ·892, and distilled water, each 19 parts. Ten grains contain the soluble constituents of one grain of powdered opium.

Tinctura Opii benzoica is made of the same material, honey excepted, as the Tinctura opii camphorata, U. S. P., but the medicinal ingredients are in larger proportion, that of opium being about 4 : 5. Powdered opium, 1 p.; benzoic acid, 4 p.; camphor and oil of anise, each 2 p.; alcohol, sp. grav. ·892, 192 parts. 200 grains contain 1 grain of opium.

Tinctura Scillæ kalina. Squill, 8 p.; caustic potassa, 1 p.; alcohol, sp. gr. ·892, 1 part.

Unguentum cereum, made from 2 p. yellow wax and 9 p. olive oil, is the basis of the ointments of belladonna, conium, digitalis, hyoscyamus, mezereon, savin, white precipitate and oxide of mercury. The proportions are 1 part of extracts or of the mercurial compounds to

9 of wax ointment. Opium ointment contains in 10 parts about 1 p. of *opium*, and is made of *extract* of opium and water, each 1 p.; wax ointment, 18 parts.

Unguentum Cantharidum. Bruised cantharides, 1 p.; olive oil, 4 parts. Digest for twelve hours, express, filter and add yellow wax, 2 parts.

Unguentum diachylon Hebræ. Lead plaster and linseed oil, equal weight, are fused together and mixed.

Unguentum flavum, used in place of the old-fashioned marsh mallow ointment, is made by digesting for half an hour 1 part of turmeric in 30 parts of lard, then melting together with 3 parts each of yellow wax and Burgundy pitch, straining and cooling.

Unguentum Kalii iodati is a little weaker than the iodide of potassium ointment of U. S. P. The liberation of iodine is prevented by adding to the ounce about 2½ grains of hyposulphite of sodium.

Unguentum leniens = cold cream.

Unguentum Rosmarini compositum s. Ung. nervinum. Lard, 16 parts; suet, 8 p.; yellow wax, expressed oil of nutmegs, each 2 p., are fused together. When nearly cold, one part each of the oils of rosemary and of juniper are added.

Unguentum Terebinthinæ compositum s. Ung. digestivum. Mix thoroughly 32 parts of Venice turpentine and 4 parts of yolk of egg; then add 1 part each of powdered myrrh and aloes and 8 parts of olive oil.

Vanilla saccharata. 1 part of finely cut vanilla and 9 parts of sugar are reduced to powder by continued trituration.

Vinum Colchici sem. and *Vin. Ipecacuanhæ* are made with sherry wine in the proportion of 1 : 10. The former is therefore weaker, the latter stronger than the corresponding preparations of U. S. P.

Vinum camphoratum. 1 part each of finely powdered gum arabic and camphor are mixed and triturated with 48 parts of good white wine, gradually added. The preparation is turbid.

Vinum Chinæ. Macerate for a week 1 part of Calisaya bark with 20 parts of good red wine. Express and filter.

CHURRUS.

By John R. Jackson, A.L.S.,
Curator of the Museums, Royal Gardens, Kew.

Three well known products of the hemp plant (*Cannabis sativa*) are known in India as Gunja, Bhang, and Churrus; the first being the dried flower branches pressed together while in a fresh state, and used for smoking like tobacco; the second, the leaves and capsules, from which an infusion or intoxicating drink is made; and the third, a kind of an earthy resin, which is always described as the most powerful of all. Churrus varies, however, in quality, three or more kinds being known; the first or highest quality occurring in large irregular lumps, the second in smaller lumps, and the third in finely broken pieces, with a large proportion of dust. All these have a more or less earthy fracture, but there are two small samples in the Kew Museum which have been apparently moulded by pressure into hard and compact masses, each about two inches long, and about half as thick again as a man's thumb, rounded at each end, and which have a somewhat greenish fracture, and a perceptible odor of musk. Whether this has been imparted to them in the course of preparation, or by contact with other articles, I am not able to say. The specimens formed part of the collection of the Medico-Botanical Society of London, and were obtained for the Kew Museum in 1853, since which time they have been kept in a glass jar, separate from other specimens, sufficient time, one would think, for them to lose any perfume not actually incorporated into their substance. Churrus is said to be seldom or never the pure resin as it exudes from the leaves, stems, and flowers of the hemp plant, so that it is not improbable that musk may sometimes be mixed up with it. And, as a further proof of the system of adulteration, the following fact may also be stated:—

Amongst some fruits, seeds, and other botanical specimens recently received at the Kew Museum from Yarkand, were some of the mealy fruits of the Trebizonde date (*Elæagnus hortensis*). The information which accompanied them was to the effect that the tree was cultivated for the sake of the fruits, which were largely consumed as food, and were carried in quantities in caravan journeys. The wild fruits, however, are not eaten, but the meal obtained from them is used entirely to adulterate churrus. In India the hemp is an officinal plant, its principal use being in tetanus, hydrophobia, and neuralgia, in its various forms; but it has also been used, it is said, with success in such diseases as cholera, rheumatism, asthma, and some phases of skin disease. It is applied in the forms of extract and tincture, and has been recommended for use in this country. In the Indian Pharmacopœia are some remarks by Sir Robert Christison, who speaks of it not only as an excellent substitute for morphia, but as being suitable in cases where morphia could not be applied, or was objected to by the patient. He further says, he has "long been convinced, and new experience confirms his conviction, that for energy, certainty, and convenience, Indian hemp is the next anodyne, hypnotic, and antispasmodic to opium and its derivatives, and often equal to it." All the products of the hemp are, however, so much adulterated that the difficulty seems to be in obtaining gunja of good quality from which to prepare the extract, which Sir R. Christison considers the best of all forms in which it can be used.

Under the name of "Majoon," a compound is used in India composed of bhang, butter, sugar, flour, and milk.—*Pharm. Journ.* (*London.*) *March* 29, 1873.

PRELIMINARY NOTICE OF A NEW SALT OF QUINIA.

Quinia Meconate.

By Peter Townsend Austen, Ph. B.

As a salt of quinia and meconic acid has not to my knowledge been before described, I attempted to prepare one.

If an alcoholic solution of meconic acid be added to an alcoholic solution of quinia, a white, curdy precipitate is formed. The precipitate is soluble in hot water, being deposited on cooling in beautiful crystals. The water solution gives reactions for both quinia and meconic acid. The first curdy precipitate on drying forms a mass resembling dried glue, the next precipitate forms minute scales of a silken lustre. Finally, small crystals are obtained. When filtered and dried on bibulous paper, the salt has a peculiar sheen, resembling minute fish scales.

A direct estimation of quinia was made as follows: A weighed portion of the dried salt was dissolved in water by the aid of heat, the quinia was precipitated by ammonia and dissolved in ether. The ethereal solution was separated from the ammoniacal liquid, and washed with water by means of a stopcock funnel, after which it was evaporated and weighed. Though the greatest care was observed in the washing, a loss of quinia occurred.

Salt.	Quinia.	Found.	Calculated.
·25 gram.	·137 gram.	54·8 per cent.	56·66 per cent.

The composition of the salt is then most probably $C_7H_2(C_{20}H_{24}N_2O_2)''O_7$, which corresponds to the silver salt $C_7H_2Ag_2O_7$.

Laboratory of Dr. J. Walz,
No. 18 Exchange Place, New York.

—*American Chemist, May*, 1873.

NOTES ON PEPSIN.

By Edward H. Hoskin, M. D., Lowell.

Much has been said about physicians' prescriptions being inaccurately compounded, and much fault found with the incompetency of apothecaries and their assistants—frequently, no doubt, without injustice to either party. As much fault may be found with some of the preparations, because of their impurities, and often of the positive inertness of what should be the active principle on which the efficacy of the drug depends. Amongst these preparations, pepsin is particularly alluded to.

The market is flooded with pepsin, of German, French, English and American manufacture, its elixirs, wines and troches—elixirs *per se*, and in alleged combination with bismuth, iron, strychnia, etc. —in fact, so elegantly, and apparently therapeutically combined, as to please the eye, taste and judgment of the physician, and by its promised combination, to appear to him as the very thing he wants in his daily practice. All is not gold that glitters, nor is all pepsin that is called so, nor do all its preparations contain the promised principle.

Curiosity at first induced me to examine a sample of Boudalt's pepsin, and getting a negative result, I still more carefully tried three other samples of the same make, and found all inert; I then tried Velpeau's, and with the same result, and then various samples of American preparation, but not one could I find that was in any way a solvent of coagulated albumen. I next tried some elixirs, and not one of these would produce the required result: then some of the wines, and with the same lack of success.

After these experiments, I came to the conclusion that pepsin, as sold in the shops, was a fraud, that physicians were defrauded of their success, and the patient of his health and his means, through the worthlessness of the drug supplied.

But on looking over a review of the new Pharmacopœia, in the Journal of March 15th, I noticed the mention of the pepsin made by Scheffer, of Louisville, and being anxious, if possible, to find a reliable article, I wrote to him for a sample, and received by mail two descriptions—"saccharated pepsin," and "concentrated pepsin." I at once experimented with them, and obtained most excellent results. With one grain of the concentrated article, I obtained the solution of one hundred grains of coagulated albumen, and with five grains of the saccharated, sixty grains of albumen—in each case using one ounce of water and six drops of muriatic acid. With one grain, also, of the former, I procured the solution of 137 grains of raw, lean beef.

These results are, I think, eminently satisfactory, and prove, at least, that there is one reliable article to be had—of home manufacture, also, instead of heavily dutied foreign goods, and which so frequently are considered the only reliable preparations.

I have been sceptical as to the therapeutic value of the so-called pepsin wines and elixirs, and my experiments have proved that, at all events, the pepsin used in their manufacture is not of any use, for there is no solvent action exerted whatever on coagulated albumen by any of them I have yet tried.

This may be the proper place to describe the method I adopt for detecting the presence of what I will call active pepsin.

It is well known that the presence of albumen in diabetic urine is an obstacle to the detection of the sugar, and that a fine mauve or purple color is produced on the addition of either Trommer's or Fehling's test solution. It occurred to me that this reaction would just come in for my purpose. Take coagulated albumen, and put into the pepsin wine or elixir; submit to one hundred degrees Fahr. in a water-bath, and if there is any of the active peptic principle present, solution of so much of the coagulum will ensue, and the albumen reduced to an allotropic condition, which, when added to the test solution, would produce the purple color.

On trying the experiment, no such thing occurred; but, on making a simple solution of pepsin in water, adding acid and albumen, and digesting for half an hour, I procured a solution which, on addition of the cupreous test, at once yielded the splendid color; repeated trials have yielded the same results. Flesh, or cheese, may be used in place of albumen, as all that is required is to obtain a peptone, and the reaction will show it; hence proving that pepsin must have been present in order to its production.

I have repeatedly dissolved a perfectly good pepsin in sherry wine, added chlorhydric acid and albumen, and submitted to a water-bath and then tested for peptone; but in no case have I been able to detect it. From this fact, I conclude that pepsin wines are useless, as far as the drug is concerned, and that the presence of the alcohol, or the small proportion of tannin, or both, destroys its catalytic action. Tannin, in solution, does the same thing. So, also, do most metallic salts; and here I would quote from Dr. T. King Chambers "On the Indigestions," page 94:—"But for the time named, I advise its being given alone, and the action not interfered with in general by other medicines. *Many* will really *prevent* its *chemical effect*, and all will confuse one's judgment of the advantage gained."

But, if to a peptone already formed, either wine, alcohol, tannin, or a metallic salt is added, the addition of the test will at once exhibit its reaction, though tannin, if in large quantity, somewhat masks it. From this, it appears that the failure of the test to indicate pepsin in wine or dilute alcohol, or in the presence of tannin, or a metallic salt, does not result from the action being masked, but from the fact of the pepsin (under the conditions) being inert.

If, then, these elegant pseudo-pharmaceutical preparations will not accomplish the conversion of a protein substance into a peptone in the test tube, there is, I think, small likelihood of their doing so in the disabled stomach. It is true the other ingredients may be of service, but often it is the pepsin that the physician is prescribing the compound for, and frequently the one thing the patient most requires; so that, if the above conclusions are true, then, indeed, are physicians laboring in the dark, and their patients done out of their health and their money.

Since writing the above, I have tried samples of Dr. Hawley's preparation, and find that his wine and glycerole of pepsin are good articles, but the wine does not appear to be a pure sherry, and the proportion of alcohol so small as not to interfere with the functions of the principle. They both will dissolve albumen, but not so actively as Scheffer's.

I give these few facts for what they are worth, and hope at least they may be of some service to the profession, especially to those who have not the time for making the investigations they otherwise would do, and to those who may have been disappointed in not obtaining results they may have been led reasonably to expect.—*Boston Med. and Surg. Journ., May 22d*, 1873.

THE CHEMICAL COMPOSITION OF VALENTINE'S PREPARATION OF MEAT JUICE.

By W. H. Taylor, M. D., State Assayer and Chemist.

The subject of concentrated food is one which the physician acknowledges to be of paramount importance, and it is one on which he desires to have information of a character more definite than he can at present obtain. Among the substances presented to his notice as concentrated food, the various extracts of beef are the most prominent, but in the conflict of opinion as to their true value, which prevails among those whom he regards as authorities, he feels inclined to discard the theoretical expositions and to judge for himself, basing his judgment upon the results of his clinical experience. A large experience of this kind, in all parts of the country, with the preparation of meat juice manufactured by Mr. Mann S. Valentine, of this city, has elicited such an amount of evidence in its favor as leads me to believe that I am doing the medical profession a service by calling general attention to it; and as it is doubtless of interest to those who use it to know its chemical composition, I append the analysis of a sample recently examined by me.

Composition of Valentine's Preparation of Meat Juice.

Water,		61·12
Organic substances.		27·90
Containing uncoagulated albumen	1·11	
Fat,	·13	
Creatine, creatinine and other organic constituents of flesh-juice and blood,	26·66	
Inorganic substances,		10·98
Containing chloride of sodium,	1·42	
Sulphate of potash,	·52	
Phosphates of iron, lime and magnesia,	1·21	
Phosphates of potash and soda,	7·83	

The analysis shows that this preparation contains a proportion as well of the nutritive principles of flesh as of those other principles which are supposed to act especially as corroborants of nervous force, —all being in such a form as requires the least expenditure of vital power to cause their digestion.

It is not my purpose to discuss the comparative merits of this or that preparation of meat. I will simply quote this passage from Liebig: "Were it ever possible to furnish the market at a reasonable price with a preparation combining in itself the albuminose together with the extractive principle, such a preparation would have to be preferred to the *extractum carnis* (Liebig's Extract of Meat), for it would contain all the nutritive constituents of meat;" and I add that Mr. Valentine has made good progress towards the realization of this result.—*Virginia Clinical Record, June*, 1873.

Varieties.

Adulteration of Copaiba with Castor Oil.—Several specimens of copaiba balsam adulterated with castor oil have, within the past year, come under the notice of Prof. E. S. Wayne. The sophisticated article appeared to have a greater consistency than the genuine copaiba—a somewhat lighter color. To the taste and smell no great difference between it and the genuine could be observed; its superior density alone was what caused suspicion as to its purity, and led to an examination of it and the detection of the above-named adulterant. In the experiments made to detect the adulterant, it was found that petroleum benzin was a quick and perfect means of so doing. It was found that the pure copaiba was perfectly soluble to a clear solution in it, and that castor oil was not. It formed a milky mixture upon being shaken together, which quickly separated into a denser and lighter liquid, the lower containing all the oil The suspected article was mixed in a test-tube with three times its volume of benzin, and shaken; a milky mixture was formed, which quickly separated into two portions—the upper containing in solution all the copaiba; the lower the castor oil. The latter, upon further examination, was found to be, as mentioned, castor oil. Hence, castor oil, as an adulterant of copaiba, is one of the most readily detected of the many substances that can be used for the purpose; and an article that will not freely and entirely dissolve in petroleum benzin must be rejected as impure. From further experiments with other substances, such as Venice turpentine, true and artificial and other fixed oils, the test unfortunately has no value.

Note, the amount of castor oil found was not the volume separated in the lower stratum, but about 50 per cent. of that. As from experiment from a measured volume in a test-tube, the lower portion separated was double the volume of oil used, when the quantities used were those named in the experiment above.—*Cincinnati Lancet.*

Nottonia grandiflora as a Remedy in Hydrophobia.—At a recent meeting of the Royal Horticultural Society, the subject of the application in the neighborhood of Bombay of *Nottonia grandiflora* as a remedy in hydrophobia was brought forward, and a reference made to the statements of Major Wheeler in the *Times* not long since, to the effect that six men under his charge having been bitten, an infusion of the stem of the plant was administered to five who recovered, the sixth who refused to take it having died. To Dr. A. Gibson is due the credit of having introduced the properties of this plant to notice in India. It is a succulent belonging to the Compositæ, and is found in dry rocky places in the Madras Peninsula. The following notes on the administration and its effects is from the Pharmacopœia of India: "About four ounces of the freshly gathered stems, infused in a pint of cold water for a night, yield in the morning, when subjected to pressure, a quantity of viscid greenish juice, which, being mixed with the water, is taken at a draught. In the evening, a further quantity of the juice, made up into boluses with flour, is taken. These medicines are directed to be repeated for three successive days. From official documents placed at the disposal of the Editor by Dr. Gibson, it appears that the remedy has been tried in numerous cases, but as at the time of the infliction of the wound, caustic was applied locally in the majority of cases, it is difficult to determine how far the *Nottonia* operated, if at all, as a prophylactic. Further trials may solve the question."—*Pharm. Journ.* (*Lond.*), *April* 26, 1873.

Supposed American Origin of Rubus Idæus.—Our cultivated Raspberry is an importation from Europe. Our native Red Raspberry, *R. strigosus*, however, is so near it that the specific distinctness has been in doubt; and specimens from British America and the Rocky Mountains certainly occur which a botanist must needs refer to *R. Idæus* itself. In his studies of the European *Rubi*, Prof. Areschoug (in Botaniska Notiser, 1872, and in a translation by himself in Trimen's Journal of Botany, April, 1872, p. 108, etc.) makes prominent and important the fact that *R. Idæus* has no near relative, or, in other words, is the sole Raspberry in Europe, but in mode of growth, in the bark, etc., as well as in the fruit, accords with American species,—with one of them so closely that all who have come to the conclusion that species have a history must needs infer a community of origin. Areschoug concludes, accordingly, that "this species did not originally have its home in Europe, but its origin is to be found in the east of Asia, viz., Japan and the adjacent countries, or perhaps in North America." It is one of the members of that old boreal flora (as we suppose) now mainly East Asiatic and North American, which has found its way to, and held its place in, the north of Europe somewhat exceptionally. Both *R. strigosus* and *R. Idæus* inhabit Japan and Mandchuria, and Maximowicz regards them as forms of a common species. Prof. Areschoug adopts the now familiar idea "that the Asiatic and North American floras have reciprocally mixed with each other by passing Behring's Straits and the islands which in its neighborhood form a bridge between the two continents;"—which is a partial explanation of a problem that has to be treated far more generally now that we have reason to believe that this flora formerly filled the Arctic zone. He thinks, moreover, that the simple-leaved frutescent species (also extra-

European) are the ancestors of those with divided leaves;—but this is a speculation of a different character, upon which little or no evidence can be brought to bear. A. G.—*Am. Jour. Sci. and Arts, June*, 1873.

Liquor Picis Alkalinus.—Dr L. D. Buckley, of New York, gives the following formula for this preparation, which was originally devised by his father: ℞. Liquid pitch, ℥ij; caustic potash, ʒj: water, f℥v. Mix and dissolve for external use. This mixes with water in all proportions, and only moderately discolors the skin. It dries rapidly and leaves very little stickiness. He has used it in all degrees of strength, and regards it as the best preparation of tar. —*Med. News and Library, June*, 1873, from *Archives of Sci. and Pract. Med.*, *Feb.*, 1873.

Pharmaceutical Colleges and Associations.

New York College of Pharmacy.—At a special meeting of this College nominations were made to fill the vacancies in the Board of Pharmacy. The vacancy occasioned by the resignation of Dr. W. M. Smith was filled by the appointment of Dr. B. E. Hays, while Dr. Wm. Neergaard, we are pleased to learn, has withdrawn his resignation, and this withdrawal has been approved.

At the College meeting held June 19th letters of acknowledgment were received from Prof. Dr. F. A. Flückiger, Dr. G. C. Wittstein, Dr. H. Hager and Mr. H. B. Brady, who had been elected honorary members. Resolutions were passed authorizing that arrangements for the lectures be hereafter made in the month of January, and directing the Lecture Committee to arrange monthly conversational meetings from October to April inclusive.

The Philadelphia College of Pharmacy is now engaged in making preparations for a considerable enlargement of its cabinet and the establishment of a pharmaceutical museum. The library is being re-catalogued, and the extensive herbarium re-arranged and catalogized.

Maryland College of Pharmacy.—At the stated meeting held June 12th the Committee on Botanical Garden reported that the project was in a fair way of being accomplished, and that by the mutual agreement between the various committees and the Park Commissioners, the scientific direction and control of the garden would be vested in the Academy of Sciences. The Committee on Conference with the medical societies (see page 88 of our February number) made a report, after which Mr J. F. Hancock proposed the following preamble and resolutions, which were discussed and adopted:

Whereas, The Medical and Surgical Society of Baltimore made charges against the pharmacists of this city for certain alleged irregular practices, for which and to correct their interference with the duties of physicians, said Medical and Surgical Society appointed a committee to confer with other committees which they invited from the medical societies of the city and the Maryland College of Pharmacy; and

Whereas, This College, pleased with an opportunity by which to establish more harmonious and honorable relations between the two professions of medicine and pharmacy, appointed a committee in accordance with the communication received from the Medical and Surgical Society, which committee did meet punctually at each of the meetings of the Conference Committee, and heard calmly and patiently the charges as specified in the report from said Medical and Surgical Society, as also other charges which were added thereto by the Conference Committee, which charges were acknowledged so far as believed to be true and just, but so far as they were believed to be unjust and selfish were refuted by the committee from this College: and

Whereas, In turn the pharmaceutical committee preferred charges against the medical profession for irregular and disreputable practices, and in order to more fully and fairly meet the grievances of both parties, a resolution was adopted by the Conference Committee by which a subcommittee was appointed consisting of three physicians and three pharmacists, with instructions to consult together on the subject and draft resolutions expressive of the grievances of both, which resolutions were to be presented for discussion at a general meeting of the two professions to be called by the chairman of the Conference Committee upon receiving the report of the subcommittee; and

Whereas, The members of the medical profession belonging to the subcommittee failed to attend the meeting of the committee, after having been duly notified: and further, as it has been learned, that at a subsequent meeting of the Medical and Surgical Society the committee from that body was regularly discharged, thus withdrawing on their part the charges against pharmacists, and virtually admitting themselves to be in error: therefore,

Resolved, That, in the estimation of this College, the members of the Medical and Surgical Society of Baltimore have discovered that the beam in their own eye is quite as large as the mote in ours, and, as too great a sacrifice is demanded of them to remove the beam from their own eye, they have agreed that the mote shall remain in the eye of their brother.

Resolved, That, as the Medical and Surgical Society of Baltimore, by the discharge of its committee, has withdrawn its charges against pharmacists, thereby rendering the committee from this College powerless to act, that the committee be and is hereby discharged from the further consideration of the subject.

Resolved, That the Secretary be instructed to record this preamble and resolutions in the Book of Proceedings, and to forward a copy of them to each of the presidents of the medical societies represented in the Conference Committee.

National College of Pharmacy.—The first course has been attended by fifteen students, of which number four had previously attended lectures in other colleges. Three of the latter passed the requisite examinations, and received their diplomas as graduates in pharmacy. Their names are: Albert M. Read, Clarence R. Dufour and Wm. B. Hieskell.

Editorial Department.

The Twenty-first Annual Meeting of the American Pharmaceutical Association.—The time is rapidly approaching when this meeting will be held, the first one in a Southern city, and, as far as can be judged from our correspondence, it will be largely attended from all sections of the country. It will be the second time that the Association will meet in a city to which it had not been invited for that particular time, and the success of the Cleveland meeting is looked upon as a guarantee for the success of the next one, at Richmond, Va., whither the Association goes under circumstances precisely like those the year previous; and as in this case, it will, undoubtedly, in September next draw to its place of meeting many of its present members, and a large number of pharmacists who have hitherto not been identified with the Association. Beautifully situated on the banks of the James river, Richmond and its surroundings present many attractive sceneries, and a historical importance reaching far back to the Colonial times. A trip to some of the historical spots in the neighborhood of Richmond has been suggested, and after the final adjournment a visit is contemplated to Mount Vernon, the home and last resting-place of Washington.

The routes proposed for the Eastern and Western members will be announced in the Secretary's circular, which will soon be issued.

Applications for membership and for space at the exhibition of pharmaceutical objects, should be addressed to the Permanent Secretary without delay.

VARIABILITY OF PHARMACEUTICAL PREPARATIONS.—"A writer in 'The Druggist' reports the result of examinations of eighteen different fluid extracts of belladonna, made by different manufacturers. They ranged from 410 to 80; or, in other words, the weakest preparation was but one fifth the strength of the most active. Such facts are startling to practitioners. Doubtless similar uncertainty prevails, though perhaps not to such an extent, in the whole range of pharmacal preparations. A remedy for the evil is imperatively demanded. The responsibility and remedy rests with pharmacists. The rapid progress of pharmaceutical science within a few years past, and the multiplication of associations and schools for its culture, ought to have debarred the possibility of results so embarrassing and disreputable. We are assured that fluid extracts are the most certain and uniform of medicinal preparations, and they are largely prescribed by physicians under this guarantee. We turn the subject over into the hands of our pharmacists for that attention and reform which are alike demanded by the magnitude of the subject in its relation to life and disease, and by their own reputation and their obligations to the community."—*Chicago Medical Examiner, May* 1.

We copy the above paragraph in the hope that the subject may attract the attention of our medical contemporaries to a far greater extent than it has hitherto done. We know nothing of the correctness of the examination quoted above, but we must remark here that the amount of solid matter contained in liquid pharmaceutical preparations is never a sure criterion by which their strength can be judged. Most of them cannot be assayed, because their medicinally active principles are either unknown or cannot be fully isolated with the same exactness as inorganic compounds. Hence all such assertions must be taken with a considerable degree of skepticism, unless the method of analysis is clearly described.

The variability of the pharmaceutical preparations as they are found in *commerce*, is nothing new to the pharmacial profession, whose voice has frequently been raised against a practice that has gradually been leading to this uncertainty. We refer to the prescribing by physicians of preparations of certain manufacturers. The pharmaceutical journals, the colleges of pharmacy, local pharmaceutical societies, and the National Association have frequently protested against it, but the medical journals have rarely noticed such protests, which we believe were not heeded by the majority of those physicians who are given to that censurable habit.

It has often been stated by pharmacists that the large majority of fluid extracts in the market are not nearly up to the strength required by the Pharmacopœia; yet some physicians will insist that A or B's fluid extract be used for his prescriptions, while others prefer C and D's make, thus frequently compelling the pharmacist to keep on hand five or six different products bearing the same name. Commercial sugar coated pills are often of the same stamp. We have seen so-called three-grain quinia pills which after the removal of the sugar weighed only two grains, a difference which cannot be accounted for by the loss of the water of crystallization. We have known so-called five-grain Dover's powder pills weigh barely five grains with the sugar covering. The unreliability and variation of the alcoholic beverages yclept elixirs is such as to have forced several societies to adopt special formulas for their guidance, in order to get rid of the countless trash that may be found in the market, and to offer to physicians preparations of a definite strength.

We are aware that physicians are not alone to blame, nor do we mean to include all physicians in this category. When we heard a pharmacist say that he bought tinctures for less than he could make them, we told him frankly that we would not trust him in pharmaceutical matters. The aim of pharmaceutical researches in this country has been to simplify the processes, so that even a moderate amount of skill may succeed in making the galenical preparations as uniform in strength as possible, and to leave no excuse to pharmacists for purchasing, and to physicians for prescribing, a favorite manufacturer's products. There is no reason why every pharmacist should not, as many do, make all those preparations of the quality of which they cannot readily assure themselves, and there are many reasons why all physicians should prescribe them as made by the officinal processes by the dispensing pharmacists themselves.

Our contemporary we trust will aid us in arriving at such a happy result, consisting in a strict uniformity of all officinal preparations, which may be somewhat modified only by the relative skill of the operator.

Botanical Gardens have frequently been alluded to in this journal, and their importance to the pharmaceutical student has often been pointed out. We take pleasure, therefore, in stating that the city of Baltimore appears to be in a fair way of adding one to the number already established in various sections of the globe. About three years ago a movement was made by several wealthy citizens to build a conservatory in Druid hill park. Owing to the ill health of Mr. Bartlett, who appears to have been particularly active for the furtherance of this enterprise, it was suspended until by the united action of the Maryland College of Pharmacy and the Maryland Academy of Sciences the project was revived, and an offer of sixty acres of ground made by the Park Commissioners, if the required sum, estimated at $50,000, could be secured. The offer has been accepted; in a short time $25,000 have been raised by subscription, and plans and estimates for the necessary buildings have already been ordered, while it was agreed to place the scientific control in the hands of the Academy of Sciences.

We wish this undertaking all the success which the object and the promptness of action deserves. Some years ago a similar movement had been inaugurated in Philadelphia, but we have never learned of any steps looking towards accomplishing the desirable end.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

A Treatise on the Principles and Practice of Medicine, designed for the use of Practitioners and Students of Medicine. By Austin Flint, M. D., Professor of the Principles and Practice of Medicine and of Clinical Medicine in the Bellevue Hospital Medical College Fourth edition, carefully revised. Philadelphia: Henry C. Lea 1873 8vo., pp. 1070. Price, bound in cloth, $6.00; in leather, raised bands, $7.00.

The fact that within a brief period three editions of this work have been exhausted, is sufficient evidence of its value to the medical student and practitioner. In his extensive clinical experience and private practice, the author has had many facilities for observation, the results of which have been used in this new revision, together with the contributions to medical literature both in Europe and this country, so that the revised edition fully sustains the reputation acquired by the preceding ones. Correctness, clearness, and convenience in the arrangement, as well as in all the details, render the work what the author intended it to be, a text-book and a work of reference.

The Passions, in their relations to Health and Diseases. Translated from the French of Dr. X. Bourgeois, Laureate of the Academy of Medicine of Paris, &c. By Howard F. Damon, A. M., M. D. Boston: James Campbell. 1873.

The author states in the preface that in writing the book he has been guided by the maxim of Aristotle: "To say what should be said, to only say what should be said, and to say it as it should be said." In our opinion, neither portion of this maxim has been carried out, and the world would have lost nothing if the book had never been written and never been translated.

Reform oder Umsturz des Concessions-Systems im Apothekenwesen? Denkschrift des Deutschen Apotheker-Vereins, &c. Von Dr. G. Hartmann, Apotheker in Magdeburg. Mit einer Anlage enthaltend 5 statistische Tabellen. Magdeburg. 1873. Fol. 60 pages.

Reform or Overthrow of the Concession-System in Pharmacy? Memorial of the German Apothecaries' Union, &c. With an Appendix, containing five statistical tables.

Those of our readers who are not familiar with the exceptional position of German pharmacy and pharmacists are referred to the essay of Dr. Fred. Hoffmann on this subject, which was published in this Journal in 1871 Since the removal in Germany of the former guild-restrictions, the abrogation of the various restrictions placed on the practice of pharmacy has been very extensively discussed, and particularly the principal question relating to the limitation of officines to a certain number of inhabitants. A discussion of this question, however, is impossible without the simultaneous consideration of all the side issues, every one of which is of vital importance in its relation to and the solution of the main point of contention. The regulation of apprenticeship and number of apprentices, the uniformity of the prices of medicines throughout the empire, the supervision of the establishments by regular and thorough inspectors, the high value obtained by the *grants* or *concessions* in the absence of all competition, the encumbrances resting upon many establishments in consequence thereof, are a few of these side issues which cannot be ignored in disposing of the former.

The author calmly reviews all the arguments which in Germany have been advanced against and for the limitation of officines, and comes to the conclusion that it should not be annulled, although the necessity of certain reformatory measures is freely conceded. This is likewise the opinion of a number of prominent men in Germany, as we observe from the contents of two additional pamphlets which we have lately received. In our opinion this abrogation, even in Germany, is merely a question of time, and on account of the numerous and wide spread interests involved, a progressive reform is required, having the ultimate removal of the restrictions in view, while their sudden overthrow would doubtlessly injuriously affect a large number with comparatively little benefit to the public.

The pharmaceutical affairs of other countries have been often cited and freely discussed while this controversy has lasted; and, as is often the case, the parties have noticed mainly what could be used as arguments in favor of their special views. But the fact has been almost totally ignored, that, as far as England and the United States are concerned, pharmacy is in a transitory condition, and that in both countries the pharmacists have been and still are the strongest advocates of measures calculated to protect the public from harm, but do not raise their voice in favor of the denial of a right which is granted to every other citizen, namely, to locate his business wherever he sees the chances of procuring for himself and family an honest livelihood. The main questions involved in the agitation in pharmaceutical affairs in Germany, have been discussed in Paris at the international Pharmaceutical Congress, held there in 1867. The vote as cast by the representatives of the United States,* we believe represents the views of the large body of pharmacists in this country, and we opine, if Great Britain had been represented, her vote would have been like that of the United States.

The document is a very important one in the history of pharmacy, and as such deserves the careful perusal of all intelligent persons. It was, with all other documents bearing on the same question, referred to the Chancellory of the German empire, from which office the proposition of a law may perhaps soon be expected, aiming to solve the problem with justice to all concerned.

Pharmaceutical Lexicon: a Dictionary of Pharmaceutical Science. Containing a concise explanation of the various subjects and terms of pharmacy, with appropriate selections from the collateral sciences, formulæ for officinal, empirical and dietetic preparations; selections from the prescriptions of the most eminent physicians of Europe and America; an alphabetical list of diseases and their definitions; an account of the various modes in use for the preservation of dead bodies; tables of signs and abbreviations, weights and measures, doses, antidotes to poisons, etc. etc., and, as an item of curiosity, a few leaves from a dispensatory published in the seventeenth century. Designed as a guide for the pharmaceutist, druggist, physician, etc. By H. V. Sweringen, member of the American Pharmaceutical Association. Philadelphia: Lindsay & Blakiston, 1873. 8vo. pp. 576.

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* See Proceedings of the American Pharmaceutical Association, 1867, p. 316.

The idea of writing a pharmaceutical lexicon was a good and praiseworthy one, which might have been carried out in various ways, so as to impart of any given term the scientific information connected with it, or to merely explain the meaning of it. The author has chosen the latter course, omitting strictly scientific information almost completely. The dictionary, which in our opinion was quite sufficient for one book, occupies 427 pages. As the first one fourth part of the title indicates, it is to embrace pharmacy and its collateral sciences; it is therefore difficult to fix a proper limit for the work, and to draw a sharp line between that which should be admitted and excluded. In this endeavor the author has not been as successful as might have been desired. In admitting, for instance, such minerals as kaolin, karpholite, karphosiderite, karstenite, etc., their relation to pharmacy is not at all apparent, and, with the same propriety, the names of nearly all minerals might have found places in the work. The chemical compounds stand in a similar position; when we meet with such terms as dibromo-coryamyrtin, dichloroxyphenyl-sulphuric acid, phtalic acid, phtalmid, phycite, etc., we might as well expect to have a catalogue of all the chemical compounds ever discovered.

The difficulty mentioned above is also apparent in another direction. Botanical terms which are frequently used in describing vegetable drugs, as for instance acaulous, lanceolate, perfoliate, serrate, etc., have very properly found a place; but why equally important and common terms, like amplexicaul, cordate, dentate, linear, sheathing, spatulate, etc., have been omitted, is not clear.

The arrangement of the matter is alphabetical, but hardly as systematic as might have been expected. Acids are found arranged under their descriptive names, like nitric, malic, maleic, etc., and partly also under the letter A, like acid. nitric, etc.: the salts are partly found under the letters of their acids, partly under that of their bases; so is the description or rather explanation of the officinal substances partly met with under the Latin, partly under the English name, and notices of one and the same substance, like opium, are found in several places. Why adulterated opium should have a heading under A, to the exclusion of every other adulterated article, is not apparent.

The explanations are sometimes quite unsatisfactory. *Gum* is, for instance, stated to be "a term employed to express various concrete vegetable juices," and *Gummi resinæ* "concrete natural juices of plants . . . . consisting of *gum* and resin." Acacia gummi, enumerated as a species of acacia from which most of the gum arabic of commerce is obtained, was probably intended for A. gummifera, but an explanation of what gum arabic means, we have been unable to find.

The enumeration of botanical species requires more care, the recognized names and their synonyms being occasionally given as of equal value, and the latest edition of the United State's Pharmacopœia deserved to be more frequently consulted.

The second part of the work consists mostly of tables collated from various sources. The advantage of the select prescriptions in such a work is not apparent to us: the compiler does, moreover, not even credit the authors, who, as the title informs us, are among the most eminent physicians of Europe and America.

The author has bestowed much labor upon this work, which is dedicated to the American Pharmaceutical Association, by whose members as well as by the profession in general it will doubtless be welcomed as a useful aid (not a guide), giving short explanations and information which are not found together in any other work, on terms and subjects frequently met with in scientific literature, and containing a number of formulas which are often needed. Notwithstanding the shortcomings, we endorse the author's views, expressed in the preface, that it will prove of great service to the pharmaceutical student, apprentice, the pharmacist, druggist and physician, as a book for ready reference, and as an aid to the study of scientific works.

On the action of Rhus venenata and Rhus toxicodendron upon the Human Skin. By James C. White, M.D., Professor of Dermatology in Harvard University. New York: D. Appleton & Co. 1873. 8vo, pp 27.

This interesting and valuable monograph was read before the Boston Society of Medical Sciences in November, 1872, and published in the March number of the New York Medical Journal.

Ninth Annual Report of the Alumni Association of the Philadelphia College of Pharmacy. 1873. 8vo, 56 pages.

Second Annual Report of the Alumni Association of the College of Pharmacy of the City of New York. 1873. 8vo, 50 pages.

The transactions of both Associations have been reported in our April and May numbers. The pamphlets contain the valedictory addresses delivered at the last commencements of the two Colleges.

Des Aconits et de l'Aconitine. Par Charles Patrouillard. Paris: 1872. 4to, 87 pages.

On the Aconites and Aconitia.

It is a thesis which was presented in November last, to the Ecole supérieure de pharmacie of Paris, to obtain the title of "Pharmacien of the first class." It is divided into seven chapters, the first of which treats of the botanical characters of the genus Aconitum, the geographical distribution of its species, their division into subgenera, and the causes of their variability. The second chapter describes the tubers of Aconitum napellus in the fresh condition and as found in commerce; tubers which have not yet developed their terminal bud, even when collected in the fall, contain a large quantity of water (loss ascertained in drying 62 per cent.) and little alkaloid, while those tubers which had produced stem and flowers, retain, at the close of active vegetation, much less water and a larger quantity of the active principle, while they are resinous upon the fracture, and at the same time soft and spongy, frequently even presenting large cavities, the result of the partial resorption of the medullary tissue; the younger tubers, however, have a more inviting aspect, and are, therefore, preferably collected. The resemblance of aconite root in the fresh state to horseradish is so slight, that the one cannot be mistaken for the other by persons of ordinary intelligence. The same is the case with the rhizome of Aconitum lycoctonum, which in no way resembles the officinal aconite tubers.

In the third chapter the species of aconite peculiar to the Himalaya mountains, are characterized, and their tubers, which occur in commerce frequently mixed with each other under the name of *bikh* or *bish*, are described and compared with a false jalap, named by Guibourt *jalap digité*, which we have never met in our commerce. Bikh cannot be mistaken, except by the grossest and most unpardonable carelessness, for true jalap, even not for the oblong or sometimes almost fusiform adventitious tubers which are frequently found to a considerable extent intermixed with the globular and napiform tubers; the concentric arrangement of the resin cells in true jalap is so apparent and at the same time characteristic that thereby it may be readily distinguished from all other drugs.

The fourth chapter is devoted to the preparation of aconitia. The author found that for the fresh root the exhaustion with tartaric acid is at least useless; he recommends the following process as adapted also to the quantitative estimation of the alkaloid: Finely powdered root is exhausted with 92 per cent. alcohol, containing 1 per cent. tartaric acid; the alcohol is distilled off in a vacuum at about 40° C., and the residue almost completely exsiccated under the air pump. The extract is dissolved in water, the filtered solution washed with ether to remove coloring matter and resin, saturated with powdered bicarbonate of sodium and again agitated with much ether to dissolve the alkaloid, which crystallizes on the spontaneous evaporation of the ether. If not entirely colorless, the aconitia is dissolved in nitric acid, decolorized by animal charcoal and recrystallized from ether. The author has generally obtained about 0·3 per cent. of pure alkaloid.

The chemical properties of aconitia are described in the fifth chapter, in which the author comes to the conclusion that there is but one alkaloid of aconite—a supposition which is not warranted by actual experiments, the arguments being insufficient to disprove the results obtained by Messrs. Smith, Morson Hübschmann and others, although the decomposition of this alkaloid in the presence of other constituents of the root and under the influence of heat may explain the different results. This, however, is acknowledged by the author in summing up his results.

The pharmaceutical preparations and their processes, and the toxical effects of aconite and aconitia are discussed in the sixth and seventh chapters.

The essay is a valuable contribution to our knowledge of aconite.

OBITUARY.

Thomas G. McKenzie died in Baltimore May 6th, in the 71st year of his age. He had been in the apothecary business for nearly half a century at the corner of Baltimore and Gay streets, and enjoyed in a high degree the esteem of his fellow citizens. For several years, owing to increasing age, he had led a very retired life.

Josiah Stewart, one of the founders of the Pharmaceutical Society of Great Britain, died on the 21st of March last, aged 69 years.

THE

AMERICAN JOURNAL OF PHARMACY.

AUGUST, 1873.

ON CHLORIDE OF MERCURETHYL.

By J. M. Maisch.

This compound, it appears, has recently been introduced in Europe into medicine, and it is claimed for it that it may be used in the same doses and for the same purposes as corrosive sublimate, over which it has the advantage of not precipitating albumen, no matter in what solution the latter may be, whether as egg albumen, in the serum of blood, in urine, etc. Schering & Co. have introduced it under the name of *Hydrargyrum æthylochloratum*.

It was discovered by Strecker* and by Dünhaupt† in 1854. The former chemist started with iodide of ethyl, preparing therefrom as the first step the iodide of mercurethyl; the process of the latter involves the previous preparation of bismuth-triethyl, which, being decomposed by corrosive sublimate, yields the compound in question, besides chloride of bismuth-ethyl. Whichever course is followed, the process, or rather series of processes, are tedious and complicated; but that of Strecker appears to offer better advantages in utilizing all the material.

Iodide of ethyl or hydriodic ether = C_4H_5I, was discovered by Gay-Lussac in 1815, and prepared by distilling absolute alcohol with hydriodic acid, and separating the compound from the distillate by water. Serullas‡ subsequently improved the process by using iodine and phosphorus with alcohol, and Personne§ found the use of amorphous (instead of ordinary) phosphorus very advantageous, using again absolute alcohol. The latter process was rendered more practical in 1862 by Reith and Beilstein,[*] who proposed to put one part of red phosphorus into five per cent. of alcohol, spec. grav. 0.83, placing the flask with the mixture into cold water, adding 10 parts of iodine, distilling after 24 hours, shaking the distillate with soda solution, and removing the oily liquid which is rendered anhydrous and rectified. Lieben communicated, in 1868, to the Vienna Academy of Sciences, his observations that the chlorides of the alcohol radicals are converted into the iodides on being heated to about 130° C., with an excess of concentrated hydriodic acid. Wanklyn[†] and De Vrij[‡] have simplified the preparation of iodide of ethyl very much by using absolute alcohol, to which a little more than one molecular weight of iodide of potassium is added; after which dry hydrochloric acid gas is passed into the liquid; or the hydrochloric acid is first passed into the alcohol and sufficient iodide of potassium added afterwards; after 24 hours the mixture is distilled, the iodide of ethyl separated by water and purified by washing, drying and rectifying.

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* Ann. d. Chem. und Pharm. xcii, 57.

† Journ. f. prakt Chemie, lxi, 399.

‡ Ann. de Chim. et de Phys. xxv, 323; xlii, 119.

§ Compt. rend. lii, 468.

Iodide of ethyl is a colorless oily liquid of 1.93 spec. grav. at 15° C. (60° F.), of a strong and peculiar odor, and boiling at about 70° C. (158° F.) When digested with mercury or some other metals, ethyl compounds of the metals are obtained. In this manner and by taking advantage of the influence of diffused light, Strecker prepares the iodide of mercurethyl, recrystallizing the product from alcoholic ether. It forms then colorless iridescent scales, subliming at the temperature of boiling water, fusing at a higher temperature, of an unpleasant odor, and being decomposed by direct sunlight finally into mercuric iodide; its composition is C_4H_5HgI. If its alcoholic solution is precipitated by nitrate of silver and the filtrate carefully evaporated, crystals or a crystalline mass of nitrate of mercurethyl are obtained, which is readily soluble in water and almost as freely in alcohol.

This nitrate is easily converted into the chloride by adding to the aqueous solution of the former, muriatic acid or chloride of sodium, nitric acid, or in the latter case nitrate of sodium being separated in the aqueous solution.

Chloride of mercurethyl has the composition of C_4H_5HgCl; it forms white thin scales with an almost silvery lustre, and of a peculiar ethereal unpleasant odor; it is very sparingly soluble in cold water, little in ether and cold alcohol, but freely in boiling alcohol, crystallizing again on cooling; it sublimes at 40° C. (122° F.) without fusing previously, and condenses in thin laminæ; exposed to the air it evaporates completely, and heated in a water-bath it may be fused to a clear oily liquid, which evaporates without leaving any residue. When rapidly heated upon platinum foil it burns with a slight flame, the vapors having a disagreeable odor and a metallic taste. Being very poisonous, it must be handled with great care on account of its ready volatility. Schering regards it as pure if it is readily and completely volatilized, dissolves without residue in boiling alcohol, yields in alcoholic solution but a faint reaction of chlorine, and, with alkali, does not produce a precipitate.

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[*] Ann. d. Chem. und Pharm., cxxvi, 250.

Polyt. Centralbl. 1867, 675.

[‡] N. Jahrb. f. Pharm. xxxi, 169.

It remains to be seen whether its inactivity upon albumen renders this new claimant for medical favor so much superior to corrosive sublimate and similar mercurials, that its good qualities would more than outweigh the dangers and uncertainties that must result from its ready volatility at our usual summer temperature.

THE NIGHT-BELL.

By J. B. Moore.

The night-bell, to many, may appear a strange subject for an article for publication in a pharmaceutic journal; but, as it is so intimately connected with the night or after-hours' business of the pharmacist, I thought a few words concerning the role it plays in that unpleasant part of our business would not be out of place nor uninteresting to the readers of this journal.

The remarks that follow, however, will not so immediately concern the night-bell itself as they will relate to the business with which it is so intimately associated.

Answering the night-bell is a duty among the most unpleasant connected with the business of pharmacy. It not only interferes with our comfort, but in some instances impairs our health; it, nevertheless, is *inseparably* connected with and forms an *integrant* part of our business, and the physician might as well refuse to attend to his night-calls as for the pharmacist to refuse to respond to the call of the night-bell. This duty should therefore be accepted, and promptly and cheerfully performed, by every member of our profession who pursues this calling with the right spirit, and with the determination to do his whole duty.

Many pharmacists answer the night-bell very reluctantly, and some will rarely respond to its unwelcome ring, and when they do will hardly treat a nocturnal customer with common courtesy, while there are some who never attend to any night business whatever; that distasteful part of their legitimate duties they seem to ignore entirely, and leave it to their neighbors to perform. After they lock their doors at night their shops are as impregnable to a suffering customer as would be the citadel of a beleaguered city to a corporal's guard. After they close their doors at night they, as it were, commend their customers to the mercy of circumstances. If an individual swallows, in the night, laudanum or other poisonous or deleterious substance, by mistake, he can get relief as best he can, so far as they are concerned; or if any one should be attacked with hemorrhage, or should meet with some accident that would imperil life if immediate and prompt relief could not be procured; or if a person should be seized with cholera morbus, colic or other painful or dangerous malady—they must obtain relief in the best way they can, or suffer until morning, or perhaps die. How a successful prescription business can be done under such management I cannot understand. Surely the pharmacist guilty of such utter disregard of his duty and the interests of his customers is not deserving of the patronage of any community.

Aside from the kindly sympathies and the humane promptings of our nature, there are also business interests involved in this matter which should commend it to the favorable consideration of all who desire success in the business of pharmacy, as none of us can tell what influence the prompt and polite attention to our night business may exert upon the general business of our store.

Every young man who contemplates choosing pharmacy as his business, if he is not already aware of the labors and various onerous duties which belong thereto, he should be fully and candidly informed of them by his intended preceptor before he enters upon his apprenticeship, and the night business should *especially* be impressed upon his mind as one of the most important and unpleasant parts of his duties. Then, if he demurs, and seems to think that he cannot accept and perform cheerfully all the legitimate demands of the business, he should, thus at the threshold, abstain from entering the arena of such a self-sacrificing and responsible vocation, and should be advised to turn his attention to some other calling more in accord with his tastes.

The petulance and ill-temper frequently manifested by pharmacists when called up at night are very unbecoming, and are evidences of the lack of the right spirit, and often cause the loss of a good customer, as persons are not likely to patronize a drug-store in day time where they are treated with discourtesy when compelled by necessity to call at night. People rarely visit a drug-store between midnight and five o'clock in the morning for any article of medicine, no matter how important or how trifling, unless they absolutely need it. No man, woman or child will willingly and unnecessarily arise from their bed, and walk perhaps four or five squares, or even, in some instances, eight or ten squares, to a drug-store for an article, and that, too, probably, in the dead hour of night, unless they were prompted by what they consider immediate and imperative necessity; and, whether they really need it or not, if they think they do, that is a sufficient justification and excuse for their calling the pharmacist up, no matter at what hour or how trifling the want. There are, of course, none of us who like to have our rest broken, or to have our sweet slumbers disturbed by the noisy tongue of the night-bell, but the duty to which it summons us is a legitimate part of our business, and we should therefore not feel too much annoyed at such occurrences.

We should all be humane and charitable towards our nocturnal visitors, for they are generally brought to our door either by real or imaginary necessity. We cannot expect everybody to be as wise as ourselves in matters relating to physic and disease. We must make due allowance for the prevailing ignorance of the public in such matters. If the public were all doctors or pharmacists, we, perhaps, would not have our hours of rest so frequently invaded. A child, perhaps, is suddenly taken ill, in the middle of the night, with pain in the stomach, and begins to cry; or has taken a slight cold, and has a little fever; or is threatened with croup or some other disease, and although, to a practiced or professional eye that has a knowledge of disease, the symptoms would not be at all alarming, since it would see in a minute that there was no immediate danger, or the slightest necessity for immediate medical aid, yet the excited parent, who is not capable of judging of the magnitude of the danger, becoming alarmed and seized with dread apprehensions, starts immediately for a physician and thence to the drug-store, or else he at once proceeds to the latter for some article which experience has taught him is useful in such cases. Now, I contend that it would be a sad state of affairs if the anxious and affrighted parent could not gain admittance to any neighboring pharmacy to obtain the much-coveted boon, in the form, perhaps, of five or ten cents' worth of paregoric, laudanum, sweet spirit of nitre, hive syrup, syr. ipecac, lime water, or other simple remedy; or, if the physician has been sought, and the medicine cannot be procured, the attendance and skill of the physician are expended in vain.

Yet there are but few pharmacists who seem to view the matter of their night business in the right light, or deal with it in the right spirit. We are aware that there are many calls made upon us at night, after business hours, for medicines that are entirely unnecessary, or at least for which there is no immediate need; but we must also remember that there are many similar calls made upon us by the public in day time which may be placed in the same category, and which go to make up, perhaps, no small share of our sales, and contribute to a very great extent to supply us with the comforts of life. But these calls are made at a time when they are more pleasurably tolerated.

Some pharmacists will never get up at night to answer any call, unless it is for medicine on a prescription, just as though no medicine was ever needed to relieve pain and suffering, or to cure disease, but what was directed in the prescription of a physician. Such an idea and such a practice are simply ridiculous.

I have had people to not unfrequently call at my store late in the night for medicine, and tell me that they had come eight or ten squares, and had tried to gain admittance at every drug store on their way, but failed to get any one up. I have frequently secured good customers in this way far remote from my own store. People usually feel very grateful to you for such an accommodation. They feel that you have proved a friend in need.

It is important, also, when called on for medicine at night, to admit the customer as quickly as possible, and not to keep the person waiting at your door longer than cannot be avoided, especially in cold and inclement weather, and more particularly if the applicant be a woman or child, for they are naturally timid and often much afraid to be out in the street at a late and lonely hour of the night. Five minutes in waiting outside, and that, perhaps, in the cold and rain, will seem to them as long as fifteen or twenty minutes to you who are inside, especially if the call be an urgent one. This is why customers are often so impatient, and annoy the pharmacist so frequently by their continued or frequent ringing of the bell or knocking at the door, if the call is not answered at once. The moment the night bell is rung or a knock is made at the door, it should be immediately responded to by answering through the speaking tube, if such a convenience is at hand, or from the window. This will prevent impatience, and the customer will wait contentedly at the door, and give you time to hastily arrange your toilet.

I am well aware that the patience of pharmacists is often sorely tried by these night callers, and there is often great excuse for our sometimes becoming vexed at the frequent interruptions of our rest. After we have been on our feet the whole day long, and wearied and fatigued both in body and mind by the labors and anxieties of the business of the day, and the

> "Soul is quite weighed down with cares, and asks
> The soft refreshment of a moment's sleep,"

then it is when we have retired to our couch of repose, and, perhaps, have just got fairly into a doze, that we are suddenly awakened by the tingle of the night bell, which, at first, falls upon the tympanum "like the soft sweet music of a dream," but in a moment arouses us to the consciousness that it is the unwelcome ring of the horrid night bell. I know that under such circumstances we cannot but occasionally instinctively and irresistably feel provoked and cross at all mankind, to think that even at night, at hours when all the world is hushed in slumber and almost all can enjoy their rest undisturbed, the poor apothecary is denied this privilege, which makes us not unfrequently wish that we had in early life chosen some other calling. But such feelings of dislike or aversion to the performance of any part of our necessary duties, no matter how unpleasant, should not be encouraged nor allowed a permanent lodgment in our bosoms, but should be repressed and, if possible, extinguished, or, if not, they will "grow with our growth, and strengthen with our strength," until finally every unpleasant duty that interferes with our comfort or abridges our pleasure will become distasteful to us, and will be performed with reluctance and indifference. Therefore, from our commencement in business we should endeavor to educate ourselves to accept and perform every duty pertaining to our vocation with cheerfulness and alacrity. By persevering in such efforts we will finally establish within ourselves a bulwark against such feelings.

It must be borne in mind that every business of life has its unpleasant features; and while ours has its full share, it also must have corresponding charms for its votaries, as it appears that when a man once becomes a pharmacist he always remains one, for we seldom see him quit it to embark in any other business.

While we are gravely and lamentingly contemplating the long hours and the many annoying and onerous duties of our business, we can gather consolation if we will but observe the labor and long hours of our corner grocer. We will then see that we have a comparatively easy business. He is on his feet, hard at work, all day long; his store is open as late at night as ours, and in the morning, while we are yet slumbering, he is by daylight at his post, with his store open and business in full blast, selling to the industrious housewife, from a penny's worth of wood for her morning fire to the choicest mackerel for breakfast.

I have, in common with my colleagues, experienced all of the many annoying features of the night business in all their multifarious forms. Perhaps, on the approach of day, before the nightingale has ceased her joyous notes, or the cock has raised his clarion voice to greet the first faint gleam of "meek-eyed Morn," a pull of the night bell or a rap at the door may awake you from your much-needed morning nap and summon you to your post. You, as quickly as possible, present yourself at the door, and salute your premature visitor in the most agreeable manner consistent with your inward thoughts and feelings. Without offering any apology for disturbing you at such an unseasonable hour, he, perhaps, with the greatest *sang-froid*, asks you if you can change him a five dollar note, or says that he will take some postage stamps, or a few good segars, or that he wishes a Seidlitz powder, or other equally trifling article; or, probably he may ask you if you know where Mr. So and So has removed to, who used to live in this neighborhood.

This is not an overdrawn picture or description of some of the scenes which occasionally take place in drug stores. Similar instances have occurred in my own experience. People guilty of such improprieties usually belong to the class of early risers, who think that everybody else, like themselves, should rise with the lark. Now I have very little patience with, and no sympathy for, such people, and in such cases I usually administer to the guilty party, in a calm but emphatic manner, without any outward manifestation of anger, a suitable rebuke. I generally say to them : "I am surprised that you should call me up at such an unseasonable hour in the morning for so trifling an article, that you could so easily have done without until I had opened my store." I say furthermore to them : "I am always willing, and will at any time, with pleasure, get up at any hour of the night to furnish you with any article of medicine or medical appliance that I have and that you might require in any case of emergency in sickness occuring at night, but I will not permit myself to be thus disturbed of my rest at so early an hour in the morning on so trifling a pretext." A little calm and plain talk of this kind does not always offend, and yet serves as a good and wholesome lesson to the individual, and prevents the repetition of the offence.

The calls that we have made upon us after business hours, which may be classed in the category of unwarranted and unnecessary, usually occur either in the early part of the night, before half past twelve o'clock, or in the early morning, between five o'clock and our usual hour for opening.

These calls are usually made by careless, thoughtless, inconsiderate, and often ignorant people, who may, in summer, be seen sitting around on their door steps until midnight, chatting, neglectful of their little wants in the way of medicine they desire to take before retiring or when they arise in the morning, hence, are obliged to call the pharmacist up after he has retired to rest, or before his usual opening hour in the morning. It is to this class of untimely visitors that a few well-timed words of chastisement and rebuke should be courteously administered.

Some pharmacists make it a rule to charge more for their services at night, and after mature consideration, I don't know but that this is perfectly right, for we should be paid for our labor in proportion to its magnitude and the personal sacrifices connected with its performance. The physician usually, I believe, charges more for his visits by night than for those which he makes by day, and I, therefore, cannot see any reason why the pharmacist is not justifiable in following the same rule. Of course, in adjusting our charges, we should be governed by the apparent circumstances of each particular case. If the person is very poor we should be very considerate, and as moderate as possible in our charges, otherwise we may do great injustice to poverty and overtax the necessities of poor and deserving people. But, notwithstanding, I cannot but think that an advance in our prices on our *night* sales is perfectly justifiable, although it has formerly always been a rule with me to make no extra charge at night, and that rule has been rarely departed from in my store.

I, for many years, attended to answering the night bell or night calls myself, but of late years have delegated that duty to my prescription clerk, and have always insisted upon a prompt and polite attention to the duty. As men advance in life they cannot so well afford to have their rest broken, as when once disturbed they cannot so readily get asleep as when younger. Most young men, however, can usually fall asleep the moment their head touches the pillow.

I have been induced to write upon this subject, believing it to be one of universal importance and interest to our profession, and which, moreover, has heretofore not received that just and intelligent consideration that its importance deserves, and to which its place in the business of the pharmacist entitles it. And if I have succeeded in impressing the points here made upon any of the younger members of the profession, who are especially liable to overlook them, I shall not have penned this article in vain.

Philadelphia, July, 1873.

ON AROMATIC TINCTURE OF ASSAFŒTIDA.

By L. Myers Connor.

This tincture has such an unpleasant smell and nauseating taste, that it cannot be given in every case required. Frequent requests of physicians to prepare a tincture that would be more pleasant to the taste and produce the same effect without the addition of water, have induced me to make some experiments. The formula offered has been tried, the aromatics being no objection, either in properties or preparation; it can be made at any time, also keeps well.

℞. Tinct. Assafœtida, U. S. P., . . ʒviij,
" Orange-peel, " . . ℥ij,
Ess. Peppermint, . . . ℥iij.

Mix. Dose, one and a half to two fluid-drachms, without the addition of water.

Dallas, *Texas*, *June* 18, 1873.

ANALYSIS OF OSHA ROOT.

By Herman Haupt, Jr.

Abstract from the author's Inaugural Essay.

This New-Mexican umbelliferous root, the botanical origin of which is still unknown, has been noticed in the *American Journal of Pharmacy*, 1867, p. 202, and 1868, p. 106. The material for the following experiments had been received from Mr. Jacob Krummeck, of Santa Fé, through Prof. Maisch.

On leaving a canton flannel strainer in contact with a hot decoction of the root, the woollen fibres of the strainer were observed to be dyed a reddish brown color, while the cotton fibres remained white. Dilute sulphuric acid changed the color to yellowish-brown (snuff color), alum solution (1 to 8) the same ; solution of soda and of ferrous sulphate deepened the color considerably.

Sixteen ounces of the root in coarse powder were distilled with water ; the distillate, at first clear, became turbid when quite cool, and separated volatile oil. The aqueous decoction, after the volatile compounds had been removed by distillation, was carefully evaporated to a syrupy consistence and treated with alcohol ; the brown precipitate dissolved readily in water, the solution yielding with alcohol a white precipitate of gum, which, on exposure to the air, again assumed a brownish color.

A concentrated solution of this precipitate formed stiff jellies with solutions of ferric chloride and of borax ; acetate of lead precipitated it white, the filtrate therefrom, after the removal of the lead by sulphuretted hydrogen, yielded, on evaporation, nearly white deliquescent crystals.

The alcoholic filtrate obtained as above from the decoction, reduced cupric oxide in alkaline solution at the boiling temperature, but not in the cold after standing for several hours ; the reduction was probably due to some organic body aside from sugar.

The root exhausted by hot water was dried, when it weighed six and a half ounces ; it was exhausted with strong alcohol, the tincture distilled and evaporated, and the residue successively treated with petroleum benzin, bisulphide of carbon and chloroform. On evaporating the last two solutions slowly, resinous masses were left behind without any sign of crystallization. Equal quantities of these resins dissolved in a like quantity of alcohol, gave solutions of a similar brown shade, but much paler in the case of the bisulphide of carbon resin.

The solution in petroleum benzin separated, on standing, at first a brown resin, in appearance and behavior identical with that taken up by the chloroform, and after several days particles of fat. The benzin was evaporated, and the resulting oil cooled to 8° F., when it thickened slightly, but did not congeal. The oil was saponified, the soap converted into soda soap, and the fatty acids liberated by sulphuric acid; a brownish gelatinous mass was obtained, which dissolved in alcohol, leaving a small portion of oil behind which was readily taken up by bisulphide of carbon. The alcoholic solution yielded a precipitate with acetate of lead, which was soluble in ether, and on the evaporation of the solvent the oleate was obtained again as a yellowish semi-fluid mass.

The mother-liquor from the soap was evaporated, and yielded a dark colored liquid containing potassium and sodium salts. This liquid being difficult to purify, some fat was obtained from the root by treating it with hot benzin, then saponified with oxide of lead, and the mother-liquor purified by sulphuretted hydrogen and alcohol; the liquid finally obtained, although not quite colorless, had the properties of glycerin.

The volatile oil separated from the aqueous distillate mentioned above, was heavier than water, of a light yellow color and the sharp burning and aromatic taste of the root. Sodium acted upon the anhydrous oil with considerable violence, slender white needle-shaped crystals being separated on standing. Caustic potassa did not unite with this oil.

A portion of the aqueous distillate, from which the volatile oil had been separated, still retained considerable odor; it was repeatedly distilled from chloride of sodium and thus concentrated, the distillate was mixed with a concentrated solution of bisulphite of sodium and the mixture cooled by ice. No crystals being obtained, the absence of an aldehyde in the distillate was established.

The aqueous distillate being of an acid reaction, was neutralized with carbonate of sodium and concentrated by evaporation, when the color became quite dark. After purification by animal charcoal and alcohol and recrystallization, deliquescent crystals were obtained. The salt distilled with an excess of diluted sulphuric acid, yielded a colorless distillate of a pleasant aromatic odor, reminding of the oil of cognac. When almost neutralized by soda, the solution gave no precipitates with sulphate of copper, ferric chloride and mercurous nitrate.

In order to compare this aromatic acid with angelic acid, the latter was prepared by Buchner's process, by exhausting angelica root with alcohol, evaporating the liquid, separating the balsam, washing it with water, exhausting it with solution of potassa, purifying the compound by repeated concentration and filtration, and distilling with sulphuric acid. Angelic acid was obtained in colorless needles, having a peculiar aromatic odor, reminding of valerian, and being sparingly soluble in cold, but freely in hot water. The lead salt was obtained in shining white plates. 0·07 grams of the lead angelate, having been previously dried at a moderate heat, was decomposed by sulphuric acid, yielding 0·052 grams lead sulphate, containing 0·0355 grams lead, which is equal to 54·7 per cent. oxide of lead in the angelate; theoretical percentage 55·17 (See Gmelin's Hand-Book).

Some Osha root was treated in precisely the same manner as the angelica root; the acid obtained did not crystallize. The lead salt was obtained in shining plates, which, on heating, fused into a transparent mass. It was dried together with the lead angelate; 0·02 grams of it yielded 0.019 grams sulphate, corresponding to 0·0129 grams lead and to 69·9 per cent. oxide of lead in the organic salt.

It seems clear from the results as given above that the acid of Osha root is not identical with angelic acid; it appears to be a new acid hitherto unknown, and to deserve to be distinguished by the name of *Oshaic acid.*

From 100 grains of the air-dried root 8 grains of ashes were obtained, containing iron, aluminum, sodium and potassium.

JERVIC ACID AND JERVATES.*

By Hermann Weppen.

The potassium and sodium salts are prepared by carefully neutralizing an aqueous solution of the acid with pure carbonate; the slightest excess of the latter causes the liquid to assume an intense yellow color. The solutions are evaporated spontaneously under a bell-glass over sulphuric acid. The potassium salt is yellowish, scarcely crys-

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[*] Abstract of a paper published in Archiv d. Pharm., 1873, March.

talline; the soda salt is white, and consists of very thin needles. Both have an alkaline reaction, are insoluble in alcohol and ether, freely soluble in water, from which solution alcohol precipitates them finally crystalline. Composition: $C_{14}H_6O_{12}K_4+2H_2O$. The sodium jervate contains 3 molecules of water.

The jervates of the alkaline earths are obtained by carefully adding to a boiling solution of the acid, recently precipitated pure carbonate suspended in hot water, until it just ceases to be dissolved. The salts crystallize on cooling, are insoluble in alcohol, but slightly soluble in water; the solutions are neutral to test-paper. Composition: $C_{14}H_6O_{12}Ba_2$; the strontium jervate contains 1, the calcium salt 6 molecules of water.

An excess of nitrate of silver produces in aqueous solutions of jervic acid a crystalline precipitate $= C_{14}H_8O_{12}Ag_2+2H_2O_1$, which is freely soluble in hot water, is not colored when exposed to the direct sunlight, and not decomposed up to a temperature of 160° C.; the solution has an acid reaction. The neutral silver salt obtained by double decomposition of the hot solutions, crystallizes in fine needles, is affected by the light (at least while moist), and has a neutral reaction. It is $C_{14}H_6O_{12}Ag_4$.

The mercurous salt obtained by double decomposition has the same composition and contains 4 molecules of water, is crystalline and insoluble in water.

Jervic acid is a tetrabasic acid; a well-defined ether has not been obtained yet. Pelletier and Caventou regarded it as gallic acid; the latter, however, is monobasic and tetratomic. By doubling its molecule ($2C_7H_6O_5=C_{14}H_{12}O_{10}$), it will be seen that jervic acid, $C_{14}H_{10}O_{12}$, contains 2H less and 2O more than the former; and digallic acid, $C_{14}H_{10}O_9$, differs in composition from jervic acid merely by 3O. The question, whether these acids are related to each other, may probably be solved by the study of their derivatives.

The two acids differ from each other as follows:

JERVIC ACID.	GALLIC ACID.
Not fusible or sublimable.	Fusible with evolution of CO_2 and formation of pyrogallic and metagallic acids.
Soluble in 100 parts of cold and about 10 parts of boiling water.	Soluble in 100 parts of cold and 3 parts of boiling water.
Insoluble in ether, difficultly soluble in alcohol.	With difficulty soluble in ether, easily in alcohol.

Contains two molecules of water of crystallization.	Contains two molecules of water of crystallization.
With little ammonia no alteration; with much ammonia, lemon-yellow color.	Little ammonia turns it yellow, much ammonia red-brown.
With excess of potassa, lemon-yellow.	Excess of potassa, yellow, red, then brown.
With excess of baryta water, yellow precipitate.	With excess of baryta water, yellow; then blue solution with green-blue flocks.
With lime water, yellow precipitate.	With lime water, yellow; then violet-green solution with similar flocks.
With excess of calcium carbonate, yellow.	With excess of calcium carbonate, bluish; then indigo-blue solution; finally, green blue precipitate.
Sulphuric acid produces no visible change.	Sulphuric acid causes red solution of rufigallic acid.
Chloride of calcium produces no precipitate.	With chloride of calcium, yellow precipitate, with evolution of carbonic acid.
With ferric salts, no alteration in the cold; the liquid becomes darker brown on heating.	With ferric salts a blue solution, passing through green into brown.
Nitrate of silver yields a white precipitate, which does not decompose with separation of silver.	With nitrate of silver no precipitate; the solution separates metallic silver.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Estimation of alcohol in fusel oil.—Dr. G. L. Ulex, of Hamburg, recommends to distil from 100 c. c. of the suspected fusel oil 5 c. c., and to agitate the distillate with an equal volume of saturated solution of table salt. If, on standing, one-half or more is separated as an oily liquid, it is a reliable proof that the fusel oil contained less than 15 per cent. of proof spirit. If, however, a smaller quantity or no fusel oil is separated, an addition of proof spirit has taken place. A given quantity of fusel oil is then agitated with an equal volume of saturated solution of table salt, in which propylic and butylic alcohols are far less soluble than in water. After complete separation the salt solution is distilled, to recover the alcohol and estimate its amount.—*Pharmac. Zeitung*, 1873, No. 48.

Test for free alkalies and for tannic acid. V. Griessmayer.—If a drop of a solution of tannin is mixed with 1 c. c. of $\frac{1}{100}$ normal solution of iodine the iodine color disappears instantly, gallic and hydriodic acids being formed. The iodine solution may be weaker, but must not be stronger, so that it is completely decolorized. If one drop of ammonia is now added, previously diluted to one-tenth its strength, or in place of it 1 c. c. of water having a very faint alkaline reaction, a brilliant red color, appearing carmine in reflected light, is produced, which remains unchanged for some time. This reaction is much more delicate than that produced by concentrated alkalies upon tannic or gallic acids, because the color is quite characteristic, and the liquid does not become darker, as in the absence of iodine.—*Ibid.. from Zeitschr. f. Chemie.*

*Constituents of cubebs.**—C. F. Schulze has again examined the officinal cubebs, and arrived at results differing somewhat from those obtained by Bernatzik and Schmidt. The composition of cubebic acid was found to be $HO,C_{28}H_{15}O_7$, of its crystallized soda salt $NaO,C_{28}H_{15}O_7+4HO$. The brown neutral resin could not be obtained in crystals; it is of pilular consistence, softens readily, is easily soluble in ether and chloroform, but with difficulty in alcohol. Concentrated sulphuric acid forms with it a dirty brown mixture, which, on the addition of nitric acid, becomes purple, then violet, and finally brown. After continued exposure of the mixture to the air the coloration produced is not as bright and distinct.—*Archiv d. Pharm.*, 1873, May, 388–395.

Soft soap is frequently adulterated. According to J. B. Oster, the microscope detects these adulterations very readily, silicates, silicic acid, alumina, ruptured starch granules, &c., being plainly visible.—*Pharm. Cent. Halle*, 1873, No. 22.

Ozonized water, made by Krebs, Kroll & Co., of Berlin, has been again examined by Dr. Behrens, of Kiel, and by Dr. O. Jacobsen, both arriving at the conclusion that the examined water contained a little hypochlorous acid.—*Wittst. Viert. Schr.*, 1873, 230.

These results, together with those obtained by Prof. Boettger (Am. Journ. Pharmacy, 1872, 105) seem to indicate that the so-called ozone water of the above firm is not always of the same composition; at any rate, it does not deserve its name. See also Am. Journ. Pharmacy, 1872, 396.

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* See also Amer. Journal of Pharmacy, 1870, 222.

The test for balsam of Peru with solution of table salt (Am. Journ. Pharmacy, 1872, 106) appears to Werner to be unreliable, since artificial products may be prepared having a higher specific gravity than that solution. He recommends the test of the German Pharmacopœia as perfectly reliable; the balsam is triturated in a mortar with an equal part of sulphuric acid, and the mass afterwards repeatedly washed with water. Pure balsam leaves a hard residue, which breaks readily, while the product from adulterated balsam is either tough, or soft like an ointment. The operation requires about five minutes. *Ibid.*, 295.

Vegetable glue.—This name is applied to a mucilage of gum arabic, the adhesive properties of which have been considerably increased by adding to 250 grams (made of 2 parts of gum to 5 of water) 2 grams of crystallized sulphate of aluminum, previously dissolved in 20 grams of water. Alum has a similar effect, but in a less satisfactory degree. —*Pharm. Cent. Halle*, 1873, No. 24.

Impure chlorate of potassium has been met with by Dr. Godeffroy. The salt was pulverulent, and sold at a higher price than the pure crystallized. By fusing and igniting 12 troyounces of it a blackish mass was obtained, which, when treated with water, left a residue weighing 90 grains, and consisting of manganium with traces of iron; this corresponds to 2 per cent. of binoxide of manganese.—*Zeit. d. Oesterr. Apoth. Ver.*, 1873, No. 17.

Precipitation of magnesium.—Prof. Mohr has proven experimentally that the precipitation of magnesium from an ammoniacal solution is best effected by ammonio-phosphate of sodium (microcosmic salt), which produces at once the insoluble crystalline precipitate, while phosphate of sodium separates at first gelatinous phosphate of magnesium, which is only gradually converted into the crystalline ammonio-phosphate of magnesium.—*Zeitschr. f. Analyt. Chem.*, 1873, 36–39.

The bark of Azadirachta Indica or nim tree has been analyzed by J. Broughton, who separated from it a resin-like principle of the composition $C_{36}H_{50}O_{11}$. It is obtained by exhausting the bark with

60 per cent. alcohol, precipitating the tincture by water, exhausting the dried precipitate by benzol, evaporating, again exhausting by carbon disulphide, then by dry ether, and finally by absolute alcohol; the last exhaustion separates a white transparent crystallizable substance, probably a fat, certainly not the active principle or an alkaloid. Thus purified the resin is dark brown, somewhat soft, of agreeable smell, slightly soluble in water, entirely in all the foregoing solvents, insoluble in fixed oils, fusible at 92° C. The dilute solutions have a strongly bitter, but not disagreeable taste. Strong alkalies and sulphuric acid dissolve it with alteration. The author believes that it can scarcely possess antiperiodic febrifuge qualities, though it may be a good tonic.

Another bitter substance, apparently a hydrate of the former, has been separated from the bark and the leaves; it is far more soluble in water. The leaves likewise contain no alkaloid. The powerful smell of the tree is not due to a sulphuretted oil, as has been surmised; indeed, no essential oil could be obtained, although the aqueous distillate of the bark has the perfume of the tree.—*Pharm. Journ. and Trans.*, 1873, June 14, from *Madras Monthly Journ. of Med. Science.*

THE LAWS WHICH REGULATE THE DISTRIBUTION OF A SUBSTANCE BETWEEN TWO SOLVENTS.

By Berthelot and Jungfleisch.

Abstract by C. E. Groves, from Ann. Chim. Phys. [4], xxvi, 396–417.

Although chemists frequently resort to the purely physical process of extracting a substance dissolved in one liquid, by agitating it with another liquid not miscible with the first, the laws which govern this molecular action have not hitherto been studied.

The present essay consists of three parts: 1. Experiments on the distribution of a substance between two solvents, made in conjunction with Jungfleisch; 2. Theory of this distribution; 3. Experiments on the state of dissolved salts, made with L. de St. Martin.

The authors have studied the solubility of iodine and bromine in water and carbon disulphide, also of succinic, malic, tartaric, oxalic, acetic, benzoic, sulphuric and hydrochloric acids, and ammonia in water, and in ether. The method of experimenting was to dissolve the substance in one of the liquids, and then agitate it with a known volume of the other, the amount of substance being determined in each of the superposed liquids when they had become saturated.

It is found that when a substance is simultaneously in presence of two solvents, the quantities dissolved by equal volumes of the two liquids have a constant ratio, which is called the *co-efficient of distribution*, and is independent of the relative volumes of the two solvents, but varies with the degree of concentration, and with the temperature. In the case of succinic acid, a decrease of temperature causes a diminution of the co efficient of distribution, and the same effect is produced by dilution. With oxalic, malic, tartaric, and acetic acids, on the contrary, the co-efficient increases with the dilution, and the same with ammonia. The co-efficient for iodine, with water and carbon disulphide, may be regarded as independent of the degree of concentration.

The fact that the co-efficient of distribution is independent of the relative volume of the two solvents, may be readily explained in the following manner: Imagine the superposed liquids to be saturated with the substance: then for equilibrium to persist, it is only necessary that there should be equilibrium at the surface of contact of the two liquids, and this would be undisturbed by the addition of an arbitrary volume of the same liquid saturated to the same degree, to either of the superposed liquids. From the consideration of the influence of concentration, it is evident that as the solutions become more dilute, the co-efficient of distribution approaches a certain limit, so that if it is desired to remove a substance from a solution by agitating it with another liquid, it is advisable to employ the latter in successive fractions (*ib.* [4], xx, 422–425). Moreover, it is easy, by successive determinations of the co-efficients of distribution, to ascertain whether the substance dissolved is homogeneous or a mixture (*ib.* [4], xx, 425, 429 and 431). As there is a limit to the co-efficient as the solutions become more dilute, there will likewise be one as they become more concentrated, and it would naturally be supposed that this limit would be the ratio of the two liquids when saturated separately; but, experimentally, this has been found not to be the case, the co-efficient being less than that corresponding to the ratio of the solubilities. With respect to the relation between the co-efficient of distribution and the chemical composition of the substance dissolved, the authors find that ether removes more readily from their aqueous solutions: 1. The more highly carburetted of two homologous acids;

2. The monobasic rather than the corresponding bibasic acid (*e. g.*, butyric than succinic acid); 3. Or than the bibasic acid having nearly the same percentage composition (acetic acid and succinic acid); also (4) of acids containing the same carbon and hydrogen, that which has least oxygen (succinic and malic acids).

In the case of two substances in presence of two solvents, they are distributed as if each of the substances acted alone. This relation is analogous to the law of the solubility of mixed gases, and is capable of being applied to the separation of two mixed substances (*ib.* [4], xx, 425–431).—*Amer. Chemist, May,* 1873, from *J. Lond. Chem. Soc.*

PEPSIN.

By Charles Symes, Ph.D.

There are few medicines, perhaps, which have received so extensive a trial, and yet respecting which such differences of opinion exist, as pepsin. It cannot be doubted that this arises chiefly from the fact that it has not been recognized by the Pharmacopœia, and hence no standard tests of quality exist in this country. Chemists purchase the kind they think best, influenced perhaps by the advertisements of manufacturers or the report of some experimenter who may have used very carefully prepared samples, and not the commercial article; or it might be they are guided by price, the best qualities being usually attributed to the highest priced article of its kind, and this, indeed, should be a correct guide. But I have also heard of orders for pepsin in which the only condition stipulated for was its low price. It occasionally occurs that extremes meet, and my experience indicates that they are not so wide apart as would be supposed, even in this instance. It will not be surprising, however, under such circumstances, that pepsin might mean anything possessing more or less digestive power, an appearance varying from that of decorticated liquorice to pulv. doveri, and an odor from almost nil to the strong smell of bacon. Variable as it might be, it has stood the test of time, and at last asserted its right to recognition and admission to at least the outer circle, viz: to the Appendix. of the British Pharmacopœia.

For some time past I have been conducting a series of experiments on pepsin, first with a view of ascertaining the quality of commercial specimens by different makers; and secondly, of testing the various processes which have been proposed for its preparation as a medicinal or restorative agent. My results under the first head somewhat surprised me, and might do others who have not made this subject one of experimental inquiry; one or two examples will perhaps serve as illustrations. It will be seen that I have used a minimum quantity of acid, so as to test the full peptic power of the various samples—the amount of acid often recommended in a given quantity of fluid being much larger than can possibly exist in the human stomach. In each instance, the white portion of hard-boiled eggs chopped in small pieces was used, and after digestion the undissolved portions, before weighing, were brought to as nearly as possible the same condition of dryness as they were in previously; 100 grains were introduced into each of six vials—to five of these ten drachms distilled water, ten minims dilute hydrochloric acid, and ten grains of pepsin of various kinds were added; in the sixth four drachms of the distilled water were replaced by the same quantity of pepsin wine, each drachm of which should have represented two-and-a-half grains of Pepsina Porci; all were digested under precisely the same conditions at a temperature of 100° for 12 hours. The following gives the amount by weight of undissolved albumen in each vial:—

No. 1	left	undissolved,	1½ gr.
" 2	"	"	2½ "
" 3	"	"	24 "
" 4	"	"	28 "
" 5	"	"	41 "
" 6	"	"	56 "

Now, the medical man who is desirous of testing the value of pepsin as a remedial agent, in one or more cases where he considers it ought to be of service, if there is any good in it, will be perfectly satisfied of its efficacy should Nos. 1 or 2 be dispensed, more or less so if No. 3; but what if No. 5? or if he should have prescribed pepsin wine, as No. 6? It might be said that this latter is largely prescribed, and also taken by invalids without prescription, frequently with good results. I can only reply that, according to the above statement, it possesses about one-half the peptic power that it should do, and that as the stomach is a laboratory whose operations are somewhat obscure even to the closest observer, in imitating its processes in a vial where we lack the vital agency, the activity of any samples operated on is almost sure to be underrated. Nevertheless, experiments conducted carefully under the same conditions are valuable as affording comparative results; and certain is it that wine or any alcoholic fluid is a most unsatisfactory vehicle for pepsin, also, that, when taken with food, it unquestionably retards digestion. The above experiment was several times repeated, first with portions of precisely the same samples, and also with samples by the same makers, but obtained from different sources; the results varied slightly, but bore the same relation to each other. It was thought desirable not to obtain the samples from the manufacturers direct, informing them of the purpose for which they were required, but all were obtained from authentic sources. The pepsin Nos. 1 and 2 were both by the same manufacturer, and, as it will be seen, were of good quality, but it is somewhat anomalous that according to the dose given the former should have been about five times the strength of the latter, whereas it would appear that there is little difference between them. The catalytic action seems to be much more vigorous in the early part of the process of digestion than towards the end; therefore, had a larger amount of albumen been present in the vial No. 1, it is possible a larger amount might have been dissolved, and the residue have been but slightly greater than it actually was. Nevertheless, this could not have been sufficient to account for the great similarity in activity of the two specimens.

Of the processes for its preparation as a medicinal agent, that of precipitating its solution by acetate of lead, and subsequent separation of the lead by hydrosulphuric acid, has probably been longest in use, but its activity appears to be more or less injured by the chemical treatment. The process of M. Brucke, consisting of solution in dilute phosphoric acid, neutralization with lime-water, re-solution in dilute hydrochloric acid, and final treatment with cholesterin, rectified spirit, and ether, yields a product possessing active peptic properties, but is more suitable as a laboratory experiment than for the purpose of manufacture on a commercial scale. Tannin and alcohol have both been proposed as precipitants for pepsin, but I am not aware of any definite process in which these are used for its preparation on a large scale. Next in order is the somewhat primitive process of Dr. Beale. It is given in the *Pharmaceutical Journal*, N. S., Vol. II, p. 684, and is as follows:—

"The mucous membrane of a perfectly fresh pig's stomach was carefully dissected from the muscular coat, and placed on a flat board. It was then lightly cleansed with a sponge and a little water, and much of the mucus, remains of food, etc., carefully removed. With the back of a knife or ivory paper knife, the surface was scraped very hard in order that the glands might be squeezed, and their contents pressed out. The viscid mucus thus obtained contains the pure gastric juice, with much epithelium from the glands and surface of the mucous membrane. It is to be spread out on a piece of glass, so as to form a very thin layer, which is to be dried at a temperature of 100° over hot water or *in vacuo* over sulphuric acid. Care must be taken that the temperature does not rise much above 100°, because the action of the solvent would be completely destroyed. When dry, the mucus is scraped from the glass, powdered in a mortar, and transferred to a well-stoppered bottle."

Several persons who have performed experiments with this (so called) pure digestive powder, including Dr. Beale himself, have spoken highly of its peptic properties; and from their position we cannot doubt the accuracy of their experiments and statements. In my own hands, however, I cannot say the results were so satisfactory as I had anticipated. The process, too, if carried out strictly according to Dr. Beale's instructions, is a very wasteful one, more pepsin being lost than is obtained; if, on the other hand, it is attempted to obtain a larger quantity, the quality is reduced. The mucus which is directed to be sponged off, and which is usually considerable in quantity, possesses about one-third to one-half the activity of the mucus which is afterwards directed to be *scraped* off; then, after this scraping, a considerable amount of pepsin remains, which can be demonstrated by dissolving it out.

Lastly, we have the process of Mr. E. Scheffer, the most satisfactory as regards uniformity of excellence and economy in working of any I have tried. It has been detailed in this Journal so recently* I need not therefore even recapitulate here. It can be made to answer strictly to the tests given; it keeps well; is soluble in an acidulated fluid, and hence might be prescribed in solution of almost any strength. Amongst other experiments one was performed in which a given quantity of the moist mucus scraped from fresh, cleansed pigs' stomachs, was divided into equal portions, one of which was retained moist, another dried in a thin layer at a temperature not exceeding 100°; from a third portion the pure pepsin was separated by Mr. Scheffer's process, but adding sufficient sugar of milk to bring it to the exact weight of the portion simply dried.

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*See American Journal of Pharmacy, Feb. 1872.

Into each of four vials 100 grains of coagulated albumen, 10 drops dilute hydrochloric acid, and 10 drachms of water were placed; to the first 10 grains of the dried mucus, to the second 80 grains of the moist (it requires this quantity to produce 10 grains of the dry), to the third 10 grains of the purified saccharated, to the fourth 10 grains of the same, and two drachms of the water were replaced by sherry wine. After twelve hours' digestion, at a temperature of 100°, the results were as follows:

No. 1	left	undissolved	31 grs.
" 2	"	"	22 "
" 3	"	"	12 "
" 4	"	"	52 "

From this we learn that undried mucus is more active than the same substance after drying; that the pure pepsin diffused through sugar of milk is more active than the mucus from which it is obtained; and finally, prove the truth of the statement before made, that wine partially destroys the activity of pepsin and is an unsuitable vehicle for its administration.

I propose, therefore, to substitute for pepsin wine an *elixir*, made by dissolving the purified moist pepsin in raspberry vinegar, so that one fluid drachm shall be capable of dissolving 100 grains of coagulated albumen. This keeps well, and is perfectly palatable.—*Pharm. Journ.*, (*London*), *July* 2, 1873.

ON BUTTER.*

By J. Campbell Brown, D. Sc. (Lond.) F. C. S.,

Lecturer on Chemistry and Toxicology at the Liverpool School of Medicine, Public Analyst for Liverpool, Cheshire and the Isle of Man.

Definition of Butter.—Pure butter is a fat which has passed through the udder of a cow or other animal as one of the constituents of milk, and which has not been decomposed, by keeping or otherwise, into fatty acids or glycerin.

In milk and cream, the fat is all contained in minute round globules, and butter appears, under the microscope, full of these globules. Chemically, it consists of a mixture of neutral fats, the glycerides of the non-volatile acids, palmitinic acid ($C_{16}H_{32}O_2$), and butyroleic acid ($C_{12}H_{30}O_2$); and the glycerides of the volatile acids, butyric acid (C_4

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*From the "Liverpool and Manchester Medical and Surgical Reports, 1873." Communicated by the Author.

H_8O_2). capronic acid ($C_6H_{12}O_2$), caprylic acid ($C_8H_{16}O_2$), and caprinic acid ($C_{10}H_{20}O_2$). (Wagner and Crookes.) The last four glycerides are the characteristic fats of butter.

When butter has been decomposed, the rancid taste and smell make its condition evident to every one. The skill of the analyst is most frequently directed to the detection of fats from the flesh of animals or from the vegetable kingdom. The fats which are generally used as adulterants or as substitutes for butter are suet, tallow, dripping, lard, a mixture of refined fats sold under various names, palm and similar vegetable oils. The most characteristic ingredients in these fats are stearin, margarin and palmitin.

Stearin is a crystalline fat, melting at 144° F., and solidifying at 124° F., soluble in hot ether, or in seven times its weight of boiling alcohol, but deposited from both these solutions on cooling.

Margarin forms scales, which melt at about 116° F., and are soluble in warm ether.

Palmitin is a solid crystalline fat, melting at from 113° to 143°, and solidifying at 114°. It is readily soluble in ether, sparingly soluble in alcohol. Stearin, margarin, and palmitin are seldom obtained pure; they occur in Nature dissolved in olein and other oils, which lower the melting-point. For instance, mutton and beef suet, lard and palm oil melt at temperatures from 25° to 55° below the melting-points of stearin and palmitin.

In drawing up the following table for the examination of butter, I have made free use of the observations of Dr. Ballard (*Chemical News*, vols. iv and v), and the scheme of Dr. Parkes ("*Hygiene*," chap. v, section xi); but I depend chiefly on my own observations on a large number of samples from different sources, made during the years 1871 and 1872.

Table for the Examination of Butter.

1. Weigh out an ounce of the sample of butter which is to be examined, place it in a test-tube seven-eighths of an inch in diameter, and melt by placing the tube in hot water. Place a thermometer, with a pear-shaped bulb, so that the bulb shall be in the middle of the fat about one inch below the surface, and allow the whole to cool spontaneously. If the quantity of water in the butter be large, it will collect in the tube below the fat; the casein will also collect in the lower part of the tube. Watch the mass as it cools, and note when solidification commences and when it is complete. The following are the average solidification-points:—

With pure butter the thermometer is obscured between 74° and 68°, and the mass is solid at 60°.

Beef dripping obscures the thermometer at 79°, and is solid at 72°.

Mutton dripping obscures the thermometer at about 85°, and is solid at 84°.

Lard obscures the thermometer at 84°, and is solid at from 79° to 70°, but it often remains as soft as butter at a much lower temperature.

Mixtures solidify at intermediate temperatures.

2. Determine the quality of the butter by the taste and smell of the re-congealed fat and of the original sample.

3. Examine several portions of the original sample by means of a good microscope, using a one-quarter inch or one-fifth inch object glass. In butter made from milk or cream, nothing is seen except the characteristic globules, and the granular masses of curd, and the cubical crystals of salt. The hard fats of butter are present in the globules in a state of solution, and are not recognizable in a separate form.

If stearic acid, stearin or palmitin be present in separate form, they will be recognized by single fusiform crystals, or star-like aggregations of acicular crystals. They indicate the presence of melted fats.

Other substances, such as starch, flour, palm oil corpuscles, Irish moss, coloring matter, etc., may also be distinguished by the microscope, as distinct from butter or fats.

4. Examine the same portions with the same object-glass, together with a polariscope, consisting of two Nicol's prisms and a selenite plate. The crystals referred to in (3) polarized light, and when viewed by the polariscope are more distinctly defined. Particles of suet and other fats, which have not been melted, may also be distinguished by their action on polarized light, by their amorphous form, and by their membranes.

5. Repeat the microscopic examination after the addition of tincture of iodine, acetic acid, and other reagents usually employed to detect substances other than fat.

6. Weigh carefully a convenient quantity of the sample, say 1 oz., in a tared porcelain dish, evaporate in a water-bath, or in air-bath, at 212°, until free from water, and weigh again ; the difference is the amount of water per ounce, which should not exceed 35 grs. (5 to 10 per cent. Parkes).

7. Dissolve the residue in ether, warming gently until the whole of the fat is dissolved, filter through a weighed filter-paper, collecting the filtrate in a beaker, then wash the dish and filter-paper with ether until a total of 5 or 6 oz. has been used, and allow the whole to stand for some time at a temperature of 65°.

8. Dry the precipitate on the filter-paper, and weigh; deduct the weight of filter-paper; the remainder is approximately the amount of curd, or casein, and salt.

9. Wash the precipitate with boiling water, dry at 212°, and weigh; deduct the weight of filter-paper; the remainder is the amount of curd or casein, which, in good butter, should not exceed 15 grs. per oz. (3 to 5 per cent.; Parkes).

10. Estimate the salt, by means of nitrate of silver, in the aqueous washings from (9), or wash another weighed portion of butter thoroughly with distilled water, and determine the salt by nitrate of silver. It should not amount to more than 8 grs. per oz. in fresh butter (0.5 to 2 per cent.; Parkes), or 35 grs. per oz. in salt butter (8 per cent.; Parkes.)

11. If the ethereal solution of the fat from (7) has formed a deposit at 65°, decant and filter off the clear solution, and examine the deposit, which is probably stearin, according to (12).

Evaporate the ethereal solution down to 4 oz., and allow it to stand for several hours at 65°. Filter off the deposit, which probably still contains stearin, and examine it also according to (12).

Allow the ethereal solution to evaporate down to 3 oz., and allow it to stand for some time at 65°. Filter off the deposit, which may still contain some stearin mixed with palmitin, and examine it separately according to (12). If the butter is adulterated, some of the stearin, and much of the palmitin, will still remain in solution, and may be obtained by continuing the process of spontaneous evaporation.

Some samples of pure butter yield no deposit from 3 oz. of ether at 65°; but fairly good butter will generally form a slight deposit, the amount of which varies in different samples. A sample of butter known to be pure should be examined side by side with the sample suspected to be adulterated; and, as winter butter is a more solid fat than summer butter, the former should be chosen for the comparative experiment.

12 (*a*). Place each of the above-mentioned deposits in a thin weighed

glass tube, and after evaporating off the ether, weigh the fat and determine its melting-point; melt carefully, and allow it to cool gradually. Place a small accurately graduated thermometer with pear-shaped bulb in the melted fat, and observe the temperature at which the latter begins to solidify. When quite solid, re-warm the tube gradually, by placing it in water, the temperature of which is slowly raised, and observe the re-melting-point of the fat.

(*b*). Or, melt the fats in a thin glass or porcelain dish, floated in water, the temperature of which is slowly raised, a thermometer being placed in the water. In this case the apparent melting-point will be 2° or 3° above the correct figure, but the relative differences between the melting points of the several deposits will be the same as in (12*a*).

13. Determine the taste and smell of each of the deposits.

44. The number of grs. per oz. may be reduced to parts per cent. by multiplying by the factor 0·22857.—*Chem. News*, *July* 4, 1873.

ADULTERATION OF PEPPER.*

By M. Bouchardat.

During the examination of a large number of specimens of ground pepper the author met with various inert powders, and among those which he detected the most often was one prepared by drying and finely pulverizing the parenchyma of potatoes which is left as a residue in the manufacture of starch. Pepper mixed with this adulterant has a more feeble odor; its taste is at first sweetish, and afterwards pungent, but less intensely so than in normal pepper. The mixed powder is uniformly grey, whilst the powder of pepper presents some blackish particles and some of a yellowish-grey color. Comparison should therefore be made between a suspected powder and one prepared by grinding pepper to the same degree of fineness. Ground pepper mixed with this potato powder floats longer on the surface of water than that which is pure, and the coloration of the water is different. Liquor iodi, added drop by drop, gives a more intense blue with the potato mixture than with normal pepper. Too much importance, however, must not be attached to this test, as M. Léon Soubeiran has shown that pepper contains a considerable quantity of a peculiar fecula.

The other substances found mixed with ground pepper were: (1)

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* L'Union Pharmaceutique, vol. xiv, p. 145.

lentil flour mixed with earth, which can be detected by the microscope and calcination; (2) chalk; and (3) linseed cake, ground to a degree of fineness comparable to that of ground pepper. By the aid of a good glass the fragments of linseed could easily be seen. In some specimens seized at the custom-house the powder of sesame seeds was detected; and it appeared probable that in this case, in order to obtain the proper shade for the powder, the adulterator, who had sent from Marseilles several hundred bags of this product, had mixed many sorts of seeds.

White pepper, obtained, as is known, by the decortication of black pepper, is often adulterated with talc, chalk and starch in considerable proportions. The introduction of these three inert matters may have for its object either the direct increase of bulk or the masking of an imperfect decortication. After the examination of numerous specimens, M. Bouchardat came to the conclusion that many manufacturers supply two products: one, known as *poivre léger*, consisting principally of the cortical part of the pepper, black fragments forming the greater portion of it; the other, known as *poivre blanc*, being mixed with talc or starch, to imitate the shade of white pepper. Although the *poivre léger* contains nothing foreign to pepper, yet, as the useful part is eliminated, the sale of such an article must be looked upon as a fraud upon the part of the dealer. It is also sometimes adulterated with ground grains of paradise, which is easily detected by means of a magnifying glass. In France, to avoid prosecution, the wholesale dealer is said often to sell the ground pepper pure and the mixture intended for its adulteration separately.

The usual adulterants of pepper may be clearly identified by means of a microscopic examination, with an instrument of 300 to 400 magnifying power, in the hands of a skilled person. The powder of pepper is characterized principally by its starch. This appears in compound grains retaining the form of the cells in which they were contained, and which they entirely filled. They are of variable forms and dimensions; M. Mussat has measured them from 0·030 mm. to 0·20 mm. in diameter. The simple grains of which they are formed are, from their juxtaposition, irregularly rounded, and are from 0·001 mm. to 0·0056 mm. in diameter. Under the action of iodine they assume a rather dull violet-blue color. Solution of caustic potash attacks them but slowly. This fecula is accompanied by the *dèbris* of the pericarp, which presents two very distinct forms of cells. In one case they are nearly cubical, with rather thin walls, containing a blackish granular matter, which is the fleshy portion of the pericarp; in the other, the cells forming the endocarp, they are cuneiform, often slightly curved, and their very thick walls are canaliculate. The author found their mean size to be 0·025 mm. wide by 0·062 mm. long. Potato starch is easily distinguished from that of pepper by its simple, more or less rounded or ovoid or irregularly trigonal, strongly refractive grains. The largest measure 0·180 mm. All, except the smallest (which measure about 0·010 mm.), have a conspicuous, often stellate hilum, and their concentric zones are clearly visible. Dilute solution of caustic potash attacks them very rapidly. A yellow tissue contained in several of the specimens examined was distinguished easily by its elongated polygonal cells, with thin, clear, yellow walls, enclosing a slightly darker granular substance. It probably belonged to some oleaginous cruciferous seed, or to linseed.

In consideration of the great skill with which pepper is now adulterated, M. Bouchardat recommends that dealers should, as far as possible, buy their pepper whole and grind it themselves.—*Pharm. Jour.* (*Lond.*), *June* 14, 1873.

BROMIDE OF ZINC.

Richmond, June 20th, 1873.

Mr. Editor.—I desire to call the attention of your readers to the *Bromide of Zinc* as a substance promising to be of value as a therapeutic agent, and to ask a trial of it in suitable cases, in order that its true value, if any, may be determined.

I was led some weeks ago, by theoretical considerations, to conclude that this would probably prove a useful combination, and I therefore requested Mr. J. N. Willis, corner 4th and Franklin streets, to undertake the preparation of it, in order that it might be duly submitted to trial. I was led to this conclusion by the belief that the sedative and nervine properties of the bromides, and the tonic and antispasmodic properties of the preparations of zinc, would harmonize very well together, and by the knowledge that the two classes of preparations are very much employed in the same category of diseases, viz.: epilepsy, chorea, whooping cough and other spasmodic and nervous affections. In epilepsy, for instance, Hammond and other writers recommend the bromide of potassium or sodium and the oxide of zinc, given at the same sime, the one in solution, the other in pill.

Now, why should not the bromine and the zinc be *combined in one and the same compound*, so as to obtain the same object (perhaps) by one prescription which has hitherto been sought by two? We have the bromide of iron, the iodide of iron, the iodide of zinc:—then why not the *bromide of zinc?*

Such were the considerations which led me to propose the bromide of zinc as probably (or possibly) a useful preparation. Mr. Willis accordingly prepared some by a process similar to that pursued in the preparation of the other articles above mentioned, viz., by direct combination of the elements; and the resulting compound being deliquescent, and apparently not very permanent in composition, it was deemed best to protect it from change by means of sugar or some other agent. Mr. Willis therefore prepared a *syrup of the bromide of zinc*, analogous to the syrups of the iodide and bromide of iron, and of the strength of one drachm of the bromide to the fluid-ounce of syrup, or 7½ grains to the fluidrachm. Supposing that glycerin would answer still better the object of protecting the compound from change, he also prepared a *glycerole*, of the same strength.

After these preparations had been made, I was informed that the bromide of zinc was enumerated in a recent price-list of a New York manufacturing druggist; but on a careful examination of the most recent works on materia medica and therapeutics accessible to me, as well as of the files of five different medical journals, I find no mention of it; I am therefore justified in inferring that it is at least not generally known to the profession.

Theory would indicate that this compound would (or might) prove useful in various diseases in which a *tonic and antispasmodic* remedy is required, viz.: epilepsy, chorea, hysteria, neuralgia, debility with nervous irritability, sleeplessness, etc. I regret, however, that I am as yet unable to furnish any clinical proof of its therapeutic value from my own experience, no case having recently presented itself which I thought suitable for a trial of it. I may refer, however, to a case recently under treatment in the hospital of the Medical College, in which it was used with apparent benefit. The patient was an adult female laboring under hysteria, with singular involuntary movements, not identical with those of chorea, but probably akin to them in nature, for which she had been subjected to various treatment without success. Dr. Taliaferro, the resident physician, with the approval of Prof. McGuire, who was directing the treatment of the case, determined to make trial of the bromide of zinc, and accordingly gave the patient 15 drops of the *glycerole*, properly diluted, three times a day—which dose was afterwards increased to 20 drops. After a few days' use of the remedy, the patient returned to her home in the country, where she continued to take it, and I learned at second hand from her physician there, that her condition is very much improved. Whether, and to what extent, the dose may have been increased, I am not informed. Of course, we can only determine by repeated and cautious trials what dose can be safely tolerated, and what quantity must be given to ensure its favorable therapeutic action. To obviate any possible irritating effect upon the alimentary canal, the medicine ought to be given in a sufficient quantity of water, to which, if desirable, mucilage and aromatics might be added.

If any of your readers should decide to make trial of the remedy here suggested (which can now be obtained of several of our apothecaries), I hope the results, whether good or bad, will be duly communicated for the general information. Yours very truly,

L. S. Joynes, M.D.

—*Virginia Clinical Record*, *July*, 1873.

THE DIRECT SYNTHESIS OF AMMONIA.*

By W. F. Donkin.

The action of induced electricity on mixtures of certain gases has been lately shown by Sir Benjamin Brodie† to yield very interesting results.

An obvious application of his method was to treat a mixture of dry hydrogen and nitrogen in a similar manner as those referred to above, with the view of effecting the synthesis of ammonia; and Sir B. Brodie kindly allowed me the use of his apparatus for the purpose of the experiment, which was conducted as follows:

A mixture of about three volumes of hydrogen with one of nitrogen in a bell-jar over water, was passed through two tubes containing pumice moistened with alkaline pyrogallate and sulphuric acid respectively, then through a Siemens induction-tube, and into a bulb containing dilute hydrochloric acid. The whole apparatus being first filled with pure hydrogen, about half a litre of the mixed gases was sent through the apparatus, the induction-coil not being in action; the bulb containing the acid was then removed and another substituted, containing an equal volume of the same acid.

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* Read before the Royal Society, May 1, 1873 (Proceedings, vol. xxi, p. 281).

† Proceedings of Royal Society, April 3, 1873, and *Pharm. Journ.*, 3d series, vol. iii, pp. 136, 156.

About half a litre of the mixed gases was now passed through the apparatus, submitting them to the action of the electricity. The contents of the two bulbs were next transferred to two test-tubes; and after adding excess of potash to each, Nessler's test was applied. The first solution gave a faint yellow coloration, the second a rather thick reddish-brown precipitate.

No attempt was made to estimate the quantity of ammonia formed, as it would vary with many of the conditions of the experiment.

Since writing the account of the above experiment, which was made in Dr. Odling's laboratory at Oxford on March 24, I have seen in the "Comptes Rendus" for April 22, 1873, a note of an experiment by Messrs. Thénard of Paris, in which they observe the formation of traces of ammonia by the action of electricity on a mixture of hydrogen and nitrogen; but no details of the mode of operating are given.—*Pharm. Journ. and Trans.*, London, June 21, 1873.

THE PREPARATION OF GELATIN.

In the ordinary manner of making light-colored gelatin, thin skins, sinews, cartilages and bones are employed, which must be treated with muriatic acid and lime before being dissolved. These have furnished a good article, but at a high price. The expense of this process therefore induced F. Henze, of Berlin, to thoroughly investigate the subject of its manufacture in the hope of producing an equally good article at a lower price. The material employed was the brown, or almost black, glue of very poor quality, which is a by-product in a Berlin neatsfoot oil manufactory, and which sells for five dollars per hundred weight. This substance does not swell up in cold water like glue, but forms a gummy mass, dissolving as a thick, syrupy liquid, not very adhesive, but resembling that of which printers' rollers are made. It is now used only in making cardboard and as a dressing for very dark-colored fabrics.

In preparing this glue, the feet are first freed from hoofs and the more solid bones of the leg, which are used for turning into buttons and ornaments, and washed. They are then exposed for three hours to the action of superheated steam under a pressure of two atmospheres in a closed vessel; and after standing quietly half an hour, the liquid is drawn off. After skimming off the supernatant grease, the strong ammoniacal glue solution is strained and evaporated on a steam bath, and then furnishes the before mentioned blackish glue. When perfectly dry, it is very brittle and easily rubbed off between the fingers. Attempts to bleach it have yielded unfavorable results. It shows that it is already decomposed and is no longer gluten, or contains only very little of it. A large quantity of sulphurous acid partially bleaches it, but to employ this on a large scale would involve many technical difficulties. The fragile apparatus for making sulphurous acid would soon be broken in the hands of the workmen. Sulphite of soda could be dissolved in a very dilute glue solution, and muriatic acid added to decompose this salt, if the quantity of the sulphite of soda required were not too large; but fifty kilogrammes of glue would require at least 2,500 grammes sulphite of soda and 2,250 grammes muriatic acid. The salts formed, which are sulphate of soda and chloride of sodium, as also the free acid, would in no case increase the quality of glue, but on the contrary would render it utterly useless for many purposes in the arts. The process of bleaching with mineral acids would also destroy the iron evaporating pans, so that this method must be given up entirely.

All attempts at giving to the glue, when finished, the color desired having failed, no other course remained but to ascertain the cause of its becoming so dark-colored. The presence of sulphur and of considerable quantities of ammoniacal salts in the glue solution was too striking to escape notice very long. They could only have been caused by allowing the steam to act too long and too violently, whereby not only were the cartilages and gristle converted into glue, but the hair too had been dissolved, and thus caused the dark color. In order to reduce the decomposition of the glue and formation of ammonia to a minimum, the process may be varied in such a manner that, instead of drawing off the contents of the digester once at the end of three hours, they shall be drawn off hourly. On standing a little, the grease rises to the top and can be skimmed off, and then a quantity of fresh wood charcoal mixed with 25 per cent. bone black is put into the liquid and left over night for the purpose of absorbing ammonia and other impurities. The following morning it is heated to a temperature at which gelatin melts, about 70° to 85° Fahr., strained and evaporated to the desired consistency. The amount of charcoal necessary is about four per cent. of the quantity of glue in solution. The odor given off by evaporation after it has been purified with charcoal is quite pleasant and resembles that of *bouillon* soup, while that given off by the former method is one of the most disagreeable smells that ever polluted the atmosphere.

Glue prepared in this way answers all the requirements of a first class article. Even in thick layers the color is a pale wine yellow, and it possesses a high degree of elasticity. It has neither smell nor taste; and being always prepared from fresh material, it can be employed for all the purposes of so-called gelatin.—*Scientific American, from Dingler's Polytechn. Journ.*

POISONING BY WILD PARSNEP—[*SIUM LATIFOLIUM* OF GRAY].

By C. B. White, M. D., U. S. A.

On April 24th, 1873, I was called, after dark, to assist E. C., a native of Belgium, aged forty-nine years, nearly twenty-one years a resident of California, who was suffering from the effects of eating less than one ounce (estimated) of the fresh root of the wild parsnep.

Evidently not familiar with either this plant or with the taboose (a highly nutritious and harmless tuber, largely used by our Indians as food), he had taken and eaten some of the root of the former, probably mistaking it for the latter, about two hours and a half before I saw him. On my arrival, I found that he had received partial relief from vomiting and purging, apparently induced by the root itself, but I found him much excited and very prostrate in strength; pulse 44, skin cold and clammy, pupils somewhat dilated, respiration slow. He complained of great dizziness, lack of mental power, and loss of voluntary motion, headache, sense of fear of death, with a decided burning feeling along the alimentary tract (æsophagus especially), and sense of swelling and flatness about the bowels. I examined the excreta and became satisfied that most of the root had been ejected, and at once gave him two ounces of whiskey, mixed up with a raw egg. After this had revived him, I administered morphiæ sulphas gr. $\frac{1}{4}$, and left a compound ipecac powder for later use.

Before I left him he was feeling much better in every way, the skin was warmer, the pulse 50, the respiration and appearance of the eyes nearly normal.

I visited him the next day and found that he had passed a good night, but was very weak still and had no appetite; he complained also of a sense of soreness and loss of power in his limbs, notably in the arms. A mild tonic restored him.

In treating him, I was forcibly reminded of the action of Veratrum viride, as I have used it in hospital practice. I believe the toxic properties of the wild parsnep to closely resemble those of the American hellebore.

The wild parsnep is very common in the swamps and along the water courses of this valley (and I believe it to be not uncommon all over the Pacific coast); in Spring-time it casts off tubers, apparently to propagate itself, and before grass starts in the Spring it is frequently eaten by cattle, causing speedy death.

When the shoots have grown up, cattle and horses eat them with apparent impunity, and the mixing of them with grass cut as hay seems to have no injurious result; but the root seems to have decided poisonous properties at all times. I saw a fine cow die about September 1st, last, from eating it.

In appearance, mode of growth, odor and taste it resembles its innocuous congener, except that its tubers are usually shorter and rounder, and that it has a latent pungent flavor. In my opinion, it would be well to spread a knowledge of its dangerous properties, so as to have new-comers made aware of them.

Camp Independence, Owen's Valley, Cal., May 1st, 1873.

—*Pacific Med. and Surg. Journ.*, June, 1873.

ESSENCE OF ALAN-GILAN (YLANG-YLANG). *UNONA ODORATISSIMA.*

By H. Gal.

In a paper presented to the French Academy the author has recorded the results of an investigation of the principal properties of the essence which for the last few years has been known in commerce as Ylang-ylang or Alan-gilan. It is a product obtained by distillation from the flower of the *Unona odoratissima*, an anonaceous tree growing in the Antilles and Jamaica.

The essence has a density of 0·980, at a temperature of 15° C. A column five centimetres long rotates a beam of polarized light 14°

to the left. It passes over entirely in distillation without leaving any carbonaceous residue, but within very extended limits of temperature, ebullition commencing at about 160° C., and the temperature continuing to rise till beyond 300° C.

The essence is insoluble in water, but entirely soluble in ether; alcohol only partially dissolves it. The insoluble portion taken up in ether appears after the evaporation of that solvent as a semi-fluid, transparent mass. About one-fourth of the essence yields this product.

Nitric acid attacks ylang-ylang with great energy, intense vapors being disengaged in the cold, and by the addition of water a resin is obtained presenting a great analogy with that which is formed by oxidation of benzoin by means of the same reagent. Bisulphite of sodium is without action upon this essence. Potash, on the contrary, when sufficiently concentrated and used at a suitable temperature, gives rise to a kind of saponification. If the alkaline portion be removed, and a fresh quantity of potash added, and the treatment be repeated until the essence is no longer attacked, a substance is left which is insoluble in water. The aqueous portion, upon the addition of hydrochloric acid, deposits a solid body having a crystalline aspect. This dissolves with facility in boiling water; the solution, being filtered to separate a small quantity of resinous matter, yields upon cooling white pearly plates. This body melts at about 120° C., it volatilizes very readily, and is deposited upon the cool sides of the vessel in shining needles, and boils regularly at about 245° C. These are the physical properties of benzoic acid, and this substance has also its chemical properties. In fact if a small quantity be heated in presence of an excess of lime, an oil is separated which is insoluble in water, and possesses the odor and properties of benzole. Treated with perchloride of phosphorus, an energetic reaction takes place, and the piquant and characteristic odor of chloride of benzole becomes manifest. A few drops of this latter body with alcohol yielded benzoic ether. For greater certainty M. Gal submitted some of this acid to analysis. 0·276 of matter, ignited by means of oxide of copper, gave 0·126 of water and 0·696 of carbonic acid.

	Found.	Calculated.
C	68·7	68·8
H	5·0	4·9

It is, therefore, quite evident that the acid abstracted from the essence by saponification is none other than benzoic acid. The author believes this to be the first essence which has yielded a like result, that compound having been, hitherto, only met with in balsams.

The part insoluble in potash was distilled with water, and then separated from the water which passed over with it into the receiver. After drying over chloride of calcium, this oil distilled at from 170° C. to 300° C., very nearly as the natural essence. With so great a range of temperature, it was useless to expect to separate from this matter definite products with a constant boiling point; M. Gal, therefore, attempted to ascertain the nature of these bodies, which might be supposed to consist of carbides of hydrogen analogous to those so often met with in essences.

The product was treated with anhydrous phosphoric acid; a vigorous reaction took place, and a liquid was collected which no longer possessed the odor of the essence. Iodide of phosphorus also reacted upon it with great energy, and a liquid was distilled more dense than water, and possessing a piquant odor. These reactions showed that it was an oxygenated substance—or rather a mixture of oxygenated substances—resembling the alcohols in chemical properties.

M. Gal considers it probable that the acid referred to may be considered as forming in the essence benzoic ethers with these alcohols. On the one hand, the acid does not exist in the essence in a free state; and on the other hand, he was unable to obtain any alcohol soluble in water by distillation of the essence in the presence of potash.—*Lond. Pharm. Journ.*, July 12, from *Comptes Rendus*, June 16, 1873.

Varieties.

Domestic Pepsin.—Messrs. Editors.—I see, in the Journal of May 22,* an article on pepsin, by Dr. Hoskins, of Lowell. I think his remarks will do good.

I am using what I call *domestic* pepsin, consisting of the inside of the gizzards of chickens, turkeys, ducks or geese, or the stomachs of calves or little pigs. Dry them on a stove in a plate, and then bruise them, and give a third of a teaspoonful of the powder in syrup a few minutes before eating. Some country people dry the gizzard itself and then grate it, and give that powder in the same way for dyspepsia.

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* See American Journal of Pharmacy, July, p. 322.

I think this crude, inelegant *domestic* pepsin far superior to pepsin made from *macerated* pigs' stomachs, and it costs the poor patient next to nothing. I direct the patient to obtain and dry these skins and bruise them.

Portsmouth, N. H. N. L. Folsom, M. D.

—*Boston Med. and Surg. Jour., June* 5, 1873.

Oysters and their Peculiar Digestive Property.—Messrs. Editors.—Recently, you had a paper from me about pepsin. While trying experiments with it, I was one day requested by one of our most experienced physicians to digest two oysters. I placed them, after thorough washing, with one grain of Scheffer's pepsin, four drops hydrochloric acid, and one ounce of water, in a test tube, and submitted to a temperature of 100° Fah. At the expiration of two hours, almost perfect solution had taken place, only four and a half grains remaining on the filter, and the residue was of a feculent character.

Thinking over this result, and the matter of eating raw oysters, I came to the conclusion that here we have an organized being, with a stomach, etc., calculated to digest infusoria—as its food—and hence possessing a gastric juice; and if so, what should hinder that gastric juice from digesting even the oyster itself, if submitted to the proper condition.

With oysters, as bought by the quart, there is so much liquor. On boiling a little of this liquor it coagulated, indicating so much coagulable albumen. I took another portion of two drachms of this liquor, one drop of hydrochloric acid, and submitted to 100° Fah. for two hours. It remained perfectly clear, and, on boiling a half of it, there was no coagulation, and, applying Fehling's test, there was the beautiful purple color produced, the whole indicating that there was in the liquor a natural element to produce the result. This experiment I have tried repeatedly; and, to make the matter still more conclusive, I placed one ounce of the filtered liquor in a flask, added to it 120 grains of thoroughly washed and wiped, solid part of an oyster, and five drops hydrochloric acid, and submitted to 100° Fah. for seven hours. On filtering, I had only seventeen grains of solid matter left, thus showing that 103 grains of the solid oyster had been digested in one ounce of the liquor.

These facts are, I think, extremely interesting, and though my medical brethren have, with me, ordered patients, on recovering from exhausting disease, oysters as a part of the diet, and many have done it empirically, it has, after all, been done under strictly chemico-physiological principles, without our knowing it. Very truly yours,

Lowell, May, 1873. E. H. Hoskins.

—*Ibid.*

On Dextrin—M. Musculus.—The author has transformed glucose into dextrin by a modification of the ordinary process of etherification. Glucose, previously dissolved in its water of crystallization and cooled, was dissolved in concentrated sulphuric acid. Then, in place of heating, he added alcohol of 95 per cent. When all was dissolved, he filtered the solution, and set it aside in a cool place in a well stoppered flask. A light precipitate appeared on the next day, and continued forming for about three weeks. This precipitate, on being separated, washed and dried, differed from starch dextrin only in its rotatory power, which, although nearly double that of glucose, is still below that of the natural product.—*Amer. Chem., May, from Bull. de la Soc. Chim.*

Detection of Adulteration in Coffee.—J. Müller.—In order to ascertain whether ground coffee has been mixed with either roasted corn or amylaceous substances generally, it is only necessary to treat the powder, first with dilute caustic potassa, and, after filtration and addition of a large quantity of pure water, a solution of iodine is added, whereby the starch is detected.—*Chem. News, May* 30, *from Dingl. Polyt. Journ.*

Estimation of Acid in Fatty Oils.—M. Burstyn.—The oils are well mixed with twice their bulk of strong alcohol, 90 per cent. at the least; this dissolves the acids which may be present in the oils, while hardly any of the latter aro taken up. The alcoholic solution can be readily neutralized with a caustic soda solution of known strength. It is best to take 100 c. c. of the oil to be tested, to which an equal bulk of alcohol is added, care being taken to mix the fluids thoroughly. After some time the alcohol floats on the oil, and 20 c.c. of the former fluid should then be taken for titration. 100 c.c. of good machinery oil should not require more than from 0·04 to 1·4 c.c. of normal caustic soda solution for neutralization.—*Ibid.*

Distribution of Potassa and Soda in Plants.—E. Peligot.—The author has endeavored to determine whether a plant, watered during the entire period of its growth with water holding in solution common salt and nitrate of soda, absorbs a certain quantity of soda; and whether it takes from the soil other elements from plants of the same species cultivated under identical circumstances, but watered—some with common water and others with potassic and magnesian solutions? The tabulated observations show that the common salt, and the nitrate of soda have been totally left by the plants; none of the ashes contained soda. Nitrate of soda acts only in consequence of the acid it contains which probably combines by double decomposition with potassa or lime.—*Ibid., May* 23, *from Compt. rend.*

The Dose of Carbolic Acid.—Dr. W. G. Cotton, East Bethlehem, Washington Co., Pa.—The following case is of interest, as showing that we may yet be unacquainted with what should be the proper dose of carbolic acid in some instances. Mrs Moffitt, aged 70, was suffering from diarrhœa, for the relief of which she requested her husband to pour out twenty-four drops of laudanum. He by mistake gave her that amount of crude carbolic acid. It "burnt" the mucous membrane of the mouth and throat considerably, and produced a moderate amount of nervous prostration, which did not last long. She at once was aware there had been a mistake made, but thought the drug taken was "pain-killer." In about an hour afterwards the discovery was made that carbolic acid had been taken, and milk was then freely used as an antidote. The evil which resulted was immediate, but immaterial, and the good accomplished was the relief of the diarrhœa. I would not recommend twenty-four drops as a proper dose of this fluid, but have an idea that one drop is rather homœopathic.—*Med. Times, June* 21, 1873.

Minutes of the Philadelphia College of Pharmacy.

A stated meeting of the Philadelphia College of Pharmacy was held June 30th. 24 members present. Wm. Procter, Jr., Vice Presieent, in the chair.

The minutes of the annual meeting were read and adopted. The minutes of the Board of Trustees were also read for information by Wm. C. Bakes, Secretary. They inform us of the election of the following gentlemen to membership in the College, viz , James P. Wood, James. A. Parker, J. A. Schiedt, G. Henry Kille, B. L. Smedley, Chas. Schnabel, G. W. Carpenter, Fr. Romberg and J. Buckman.

The committee appointed at the last meeting to endeavor to prevent the passage of the "Drug Law," reported, through James T. Shinn, that they had prepared a remonstrance to be sent to the Legislature at Harrisburg, but in consequence of the defeat of the measure, they found it unnecessary to proceed further in the matter.

Thomas S. Wiegand, Chairman of the Sinking Fund Committee, reported that the remaining scrip of the College had been all paid off, in accordance with the resolution adopted at the last meeting.

A letter from W. Erasmus, of Riga, Russia, to the President of the College was read. It informs that the President of the Riga Pharmaceutical Society, M. Carl Frederking, will, on the 16th of July, celebrate the fiftieth anniversary of his connection with Pharmacy.

On motion, a committee, consisting of Professor John M. Maisch, Alfred B. Taylor and James T. Shinn, was appointed to prepare and transmit a letter of congratulation to our honorary member on this interesting anniversary.

Thomas S. Wiegand, on behalf of the committee on deceased members, presented the following report:

On May 26th, 1872, Llewellyn S. Haskell, an associate member of this College, died at Santa Barbara, in the 57th year of his age. He had been engaged in the drug business in his native State (Maine), and removed to Philadelphia, where he was employed by W. & L. Krumbhaar, and upon their retirement from business, entered into partnership with the late Jos. Reakirt, in conducting the wholesale drug business, on the premises formerly occupied by the Krumbhaar's; about eight years after he removed to New York, where he was still interested in the drug business for several years. He was a man of great activity, fluent in conversation, and of easy address; he was well informed on matters relating to the drug business, having paid especial attention to chemical studies, both in business and in the laboratory of Professors Booth and Boyé.

Mr. Haskell's health had been delicate for a number of years previous to his death, and it was in hopes of recovery that the last journey he made was undertaken.

In private life he was pure and loving, and many friends will long lament his death.

The report was accepted, and directed to be placed at the disposal of the Publication Committee.

Prof. J. M. Maisch brought to the notice of the College the death of Prof. Liebig, of Munich, and Dr. Casselmann, of St. Petersburg. A. B. Taylor also mentioned the decease of Richard W. Test, of Camden, N.J., which event had just transpired.

Prof. Maisch presented to the College from Mr. Lochman, of Carlisle, a new cork-presser, operated upon a new principle, which was accepted, and submitted to the inspection of the members.

Prof. Maisch also presented from Mr. Wilder a valuable collection of Swedish mosses.

Dr. Robert Bridges, on behalf of the widow of Dr. R. E. Griffith, presented for the use of the Library a list of the books she had previously given to the College, and which had been the property of her late husband. The catalogue embraced a number of valuable works.

On motion of J. P. Remington the books were accepted, and the thanks of the College were directed to be presented to Mrs. Griffith. The Library Committee was directed to label each of the volumes presented as being a donation from Prof. Griffith's library.

An election for delegates to attend the meeting of the American Pharmaceutical Association, at Richmond, Va., in September next, resulted in the choice of Prof. Wm. Procter, Jr., Charles Bullock, Joseph P. Remington, S. Mason McCollin and William McIntyre. At the same time an election for delegates to attend the convention of the teaching colleges, was held. Professors Robert Bridges, Wm. Procter, Jr., and John M. Maisch were chosen, with power to fill all vacancies that may occur.

Then on motion adjourned.

William J. Jenks, *Secretary.*

Pharmaceutical Colleges and Associations.

Philadelphia College of Pharmacy.—The Board of Trustees have lately modified the requirements for graduation, as will be observed from the advertisement of this School upon another page. Hereafter, persons will not be eligible for the diploma of *Graduate in Pharmacy* unless they have served their apprenticeship in a store or stores where prescriptions are compounded. Persons apprenticed to wholesale druggists or manufacturers may, after the usual examinations, obtain a Certificate of Proficiency in Materia Medica and Chemistry, and, after a subsequent service of two years in a prescription store, and the successful passing of an examination in theoretical and practical pharmacy, will then receive the Diploma of the College. We understand that matriculants of the College of former years will be permitted, until the spring of 1874, to compete for the diploma of graduate, under the old regulations.

Maryland College of Pharmacy.—At the stated meeting, held on the 10th of July, the semi-annual election of officers resulted in the election of John F. Hancock President, and the re-election of Edwin Eareckson Secretary, J. Brown Baxley Treasurer, and Louis Dohme one of the Examiners.

The following gentlemen were elected delegates to represent the College at the meeting of the American Pharmaceutical Association, to meet at Richmond, in September. L. Dohme, N. Hynson Jennings, J. Harry Hancock, Wm. Silver Thompson, and J. F. Hancock; alternates F. Hassencamp, A. P. Sharp, Wm. H. Osbourn, J. Newport Potts and A. N. Marion.

Messrs. J. Faris Moore, Louis Dohme, Wm. Silver Thompson, Joseph Roberts and A. P. Sharp were elected delegates to the Conference of Colleges, to be held at the same time and place.

The Louisville College of Pharmacy has changed the requirements for graduation so that applicants for the diploma of this College must have served an apprenticeship of four years in a prescription store, or of not less than two years in a prescription store, and of two years to the wholesale drug business.

The recent action of the Louisville and of the Philadelphia Colleges harmonizes to a greater extent than was the case heretofore, the qualification of *experience*, as required by the teaching Colleges of Pharmacy, that of New York having made a similar change some months since.

Chicago College of Pharmacy.—At the meeting held June 11th the following members were elected delegates to the next annual meeting of the American Pharmaceutical Association and to the Convention of the Teaching Colleges of Pharmacy: Thomas N. Jamieson, Albert E. Ebert, George Buck, E. H. Sargent and Theo. H. Patterson.

The Board of Trustees was empowered to co-operate with any movement that may be made for holding a Convention of Pharmacists of the Northwest during the October exposition in Chicago.

After the consideration and adoption of some changes in the By-Laws, Mr. E. H. Sargent, in behalf of the Committee on the Attfield Testimonial, presented to the College an oil painting of Professor J. Attfield, who, the chairman said, "stands to us as the representative of that noble band of English pharmacists who so generously and promptly came to our aid in the time of our great adversity." The portrait was received by the President of the College, Mr. Thos. Whitfield, and then directed to be placed on exhibition, with a suitable inscription, in the Chicago Art Gallery.

St Clair Pharmaceutical Association of Southern Illinois.—We acknowledge the receipt of a copy of the Statutes of this Association, which was organized April 23d last, and incorporated May 20th. The following is stated to be the *object of the Association:*

The object of this Association shall be to unite all Practical Pharmaceutists of Southern Illinois for the purpose of promoting the interest, the development, the welfare and progress of the Pharmaceutical Science and Art, and also of improving, elevating and protecting our professional standing in public life. It shall be furthermore the future aim of this Association to erect a School of Pharmacy for the Southern part of this State, at the city of Belleville, as soon as possible and practicable, in order to educate therein theoretically and practically studied Pharmaceutists, so that our worthy profession may derive honor, and the medical faculty as well as the public in general may receive benefit by it.

We sincerely wish good success to every pharmaceutical association devoting its energies to the welfare and progress of pharmacy, but we trust that our friends of Southern Illinois will well weigh the apparent necessities before they attempt to carry out their aim to establish a School of Pharmacy. Pharmaceutical education in the United States knows no geographical limits, and is not confined by narrow State boundaries; an indefinite multiplication of pharmaceutical schools could, in our opinion, be hardly otherwise than unfortunate in its results. Belleville, we believe, is distant but twelve or fifteen miles from St. Louis, where, for a number of years, a college of pharmacy has been struggling for a foothold, which it now seems to have gained, and will doubtless maintain if it receives the hearty support of all those pharmacists of St. Louis and vicinity who acknowledge the value of pharmaceutical education.

PHARMACEUTICAL SOCIETY OF PARIS.—At the meeting held May 7th, a paper by Mr. Carles, On a New Variety of Opium,* was read and discussed. Mr. Boudet spoke of a paper by Mr. Chautard, read before the Academy of Medicine, On the Spectrum of Chlorophyll. Mr. Buignet stated the principal results to be as follows: A solution of chlorophyll shows in the spectrum between the red and orange a large absorption band; with the micrometer of the field divided into 100 parts and its position regulated so that the sodium line, D, corresponds with 40, the black band occupies the space between the points 22 and 30. If to the chlorophyll solution a small quantity of caustic potassa or soda is added, the central portion of the band acquires its luminosity, so that two dark lines are now perceived, corresponding to the extreme edges of the primitive band, and consequently situated at 22 and 30 of the micrometer.

A report by Messrs. Mialhe, Lefort and Latour, on iodized tar water and syrup, recommended by Mr. Bretet, of Cusset, was read; the iodine it appears is partly taken up to form substitution compounds with the constituents of the tar, a portion being converted into hydriodic acid.

Mr. Grassi exhibited ceresin (see page 11 of our January number). Mr. Guichard spoke of the crystallized benzoic acid exhibited by him before (see June number p. 282), some crystals weighing 0·7 grams and having the crystalline form of gypsum; he was unable to crystallize ordinary benzoic acid in any other form except the well known small plates.

Mr. Latour presented specimens of fused nitrate of zinc and of caustic pencils made from it. The concentrated solution, a paste made from it with wheat flour, mixtures of the nitrate and chloride of zinc and the pencils have been used as caustics in the Hôtel-Dieu at Lyons.

Mr. Roucher recommends the addition of a little glycerin to plasters, to prevent them from breaking too readily. Mr. Desnoix said that the same result is obtained if the glycerin is not washed out of the lead plaster.

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* See American Journal of Pharmacy, July, page 314.

At the meeting held June 4th Mr. Stan. Martin exhibited Persian opium in sticks, from which, by the ordinary processes, no morphia could be obtained; also a sample of kino from Soudan which is unknown in Europe. When examined by the microscope it does not appear to have been subjected to any particular manipulation; water dissolves 80 per cent of it; its low price recommends it for use in the arts.

Mr. Gosselet, Vice-President of the Pharmaceutical Society of Northern France, communicated by letter a decision by the court of Douai, that cod-liver oil is to be regarded as an aliment, and may be sold by grocers. Some questions submitted by the district attorney were discussed, and by the Society of Paris unanimously decided as follows: Cod-liver oil is a simple drug and a true medicine, and should not be sold in medicinal quantities by druggists or grocers; there is a distinction to be made between the oil prepared according to the pharmacopœia by a particular process for internal use, and that used by tanners, which is usually more or less impure fish oil.

Mr. L. Soubeiran communicated an extract of a letter from Mr. J. E. Howard, informing that he had planted in the open air near Cottenham several specimens of Cinchona calisaya, which are thriving well; he adds that Professor Baillon has had a similar experience this year near Paris.

Mr. Planchon, in behalf of Prof. Flückiger, presented a detailed inventory of a pharmacy at Dijon from the year 1439. It is a curious document, and valuable for the history of pharmacy.

Mr. Toselli, by invitation, exhibited his apparatus for making ice, and produced in five minutes a block weighing 500 grams, using nitrate of ammonium by dissolving it in water, as the source of cold. Mr. Poggiale regards the apparatus as very ingenious, but believes that of Mr. Carré preferable, because it does not require the transportation of material at an elevated price for the production of the ice.

Mr. Mayet read a note on the preparation of antiscorbutic syrup from a fluid extract; this created considerable discussion in favor of and in opposition to the proposed change. It appears that the fluid extracts and concentrated tinctures now met with in French commerce are often worthless preparations: Mr. Mayet therefore proposes to critically experiment with the processes.

Mr. Boudet reported that the Minister of Public Instruction, on behalf of the Minister of War, had addressed a letter to the Academy of Medicin, requesting an opinion on the fusion of military medicin and pharmacy, on the subordination of the latter to the former, or on maintaining their present relations. The Academy has appointed a committee of nine, only three of which number, the Pharmaceutical Society regrets to hear, are pharmacists, while six are physicians. Mr. Poggiale, a member of the committee, believes that the Academy will decide in favor of the present status.

The General Pharmaceutical Association of Belgium met in the free university of Brussels, May 4th last. The principal business transacted was the consideration of the amended constitution; as adopted every member has the right to vote, personally if present, or by proxy if absent. The officers were re-elected as follows: Victor Pasquier, President; De Bauque, N. Gille, Van Bastelair and Van Pelt, Vice-Presidents; E. Vande Vyvere, Secretary, and Vanden Heuvel, Assistant Secretary.

Editorial Department.

The Twenty-First Annual Meeting of the American Pharmaceutical Association will convene at the Virginia Opera House (formerly Virginia Hall), in the city of Richmond, on Tuesday, the 16th day of September, at 3 o'clock P.M. The following arrangements have been made for visiting members: those from the Eastern cities will leave Baltimore on Monday, the 15th of September, at 4 o'clock P.M., by the York river line of steamers, the trains leaving New York at 9 A.M. and Philadelphia at 12.15 M., making close connections. The steamers will reach West Point at 8.30 A.M. on Tuesday, the party arriving in Richmond at 11 o'clock the same morning. A reduction of fare from Baltimore has been secured; but the members are requested to inform Mr. J. F. Hancock, corner of Baltimore and Caroline streets, Baltimore, in advance, of the number of berths required, and the time of their arrival in that city. No other reduction of the fare could be secured by the Permanent Secretary for the Eastern members.

The following excursion has been arranged for the Western members: they will leave Cincinnati on Friday, September 12th, at 4 o'clock P.M., for Huntington, by steamer, arriving there the next morning at 9 o'clock; thence by rail to White Sulphur Springs, where they will spend Sunday, leaving again Monday morning and arriving at Richmond at 5 P.M. the same day. Fare from Cincinnati to Richmond, $17. Members and their families going by this route, are requested to give timely information to Prof. J. F. Judge, corner of Court and Cutter streets, Cincinnati. They will be passed back over the same route *free of charge* upon presenting a certificate from the Secretary.

The headquarters of the members at Richmond will be at the "Exchange Hotel and Ballard House," where ample accommodations and a reduction from the regular charges have been secured.

An excursion of the members to Petersburg, Va., has been proposed for one afternoon, and a visit to Mount Vernon after the final adjournment of the Association. Members intending to participate are requested to inform the Secretary, after their arrival in Richmond, of the number of tickets required, when the expenses of each trip will be made known.

Goods intended for exhibition should reach Richmond on Monday, and be sent free of charge, directed to the Association, at the Virginia Opera House, notice being given to the Secretary stating the space required.

The General Index to the American Journal of Pharmacy, we are glad to observe, meets with that appreciation which it deserves for its elaborateness.

Among the letters which we have received about Mr. Wilder's work, we publish the following, from Mr. Henry C. Morse, of Elmira, N. Y., not merely because it deservedly praises the book in question, but because it contains a suggestion which is worthy of adoption by all who occasionally or often may have to consult the later volumes of the "Journal." Mr. Morse says:

> I have made a very careful examination of its contents, and find it, without any exception, the most complete and thorough as to matter and most perfect as to arrangement of any work of like nature that has come under my observation, exhibiting a very large amount of careful, patient and exceedingly hard work.
>
> Allow me to suggest that subscribers may continue the work in all its perfection by having a blank leaf placed between each two leaves of the printed book when bound, and make additions with pen and ink as each new volume is issued. By so doing, each subscriber will virtually have the "General Index" always complete to the present time.

Aromatic Spirit of Ammonia.—A correspondent has met with difficulties in making this preparation, as he thinks, strictly according to the Pharmacopœia. At one time he observed in the bottle used for the purpose, a thick sediment about an inch in depth; at another time the sediment was only about $\frac{1}{8}$ inch in thickness, and when he made the spirit a third time there was no precipitate whatever.

The translucent officinal carbonate of ammonium may be regarded as sesquicarbonate of ammonium, or as a chemical combination between the mono- and bicarbonates of ammonium. The sesquicarbonate is insoluble in alcohol, by which liquid it is decomposed into monocarbonate, which dissolves, and bicarbonate, which precipitates. The addition of ammonia water, as directed by the Pharmacopœia, converts this insoluble bicarbonate into soluble monocarbonate; hence, if the ammonia water used is weaker than the officinal, the quantity directed is insufficient to dissolve *all* the bicarbonate, and consequently leaves a sediment.

On exposing the officinal translucent sesquicarbonate to the atmosphere, it becomes opaque, white, and finally pulverulent, at the same time becoming much weaker in odor: monocarbonate of ammonium has been lost by evaporation, and bicarbonate is left behind, which, to be converted into soluble (in alcohol) monocarbonate, requires a *much larger* amount of ammonia water than is needed for the same purpose by the officinal salt.

The causes of failure in making this preparation are, therefore, an ammonia water weaker than the officinal, and (2) an opaque or effloresced carbonate of ammonium. If the material employed is strictly that directed by the Pharmacopœia, no sediment will occur.

Collusion between Physicians and Pharmacists.—We have on several occasions referred to a species of fraud, the result of a compact between physician and pharmacist, of which of course the patient is the intended victim, and which is consummated by the former writing his prescriptions in a manner that they can be deciphered only by the second party of the understanding. The following, which is taken from a correspondence placed at our disposal, furnishes another illustration of the manner in which this arrangement is carried out.

Two prescriptions were received by a friend of ours, as follows:

R. Mc F 904 ℥iv. Sig. Use as directed.

R. McF pulv. (C) No. xv. Sig. One every three hours.

To a note dispatched to the prescribing physician, asking for the formulas, the following answer was received:

Dear Sir,—The prescription 904 404 is private. You can get it at W——'s drug store. Yours, &c., J. McF.

Further comment is unnecessary.

Adulterations by "Neutral Oil."—The following circular, received by us, exhibits a surprising degree of barefacedness and of confidence into the dishonesty of the wholesale drug trade. We have no means of ascertaining to what extent the circular has been distributed or was responded to; but we would advise all interested to be on the look-out for adulterations by "neutral oil." What kind of an oil this latter article is we are unable to say, but should be glad to receive a sample for experimental purposes. Leaving out the names, &c., the circular reads as follows:

Western Oil Company, Manufacturers of Animal and Vegetable Oils, Car and Axle Grease.

Special Circular to Wholesale Druggists.

Gentlemen,—We call your attention to our "Neutral Oil." *made expressly to manipulate lard oil, raw and boiled linseed, refined cotton-seed oil, and castor oils; also used extensively for wetting down wool.* It does not stain. One trial will convince you it will enable you, to make large profits on articles that heretofore hardly paid to handle. No orders filled less than a barrel. Prices as follows: One barrel, 48 cents per gallon, &c. Our prices are firm at above quotations. Trusting to receive a sample order, we &c.

OBITUARY.

Gustav Rose, the celebrated mineralogist and chemist, died July 21, having passed his 75th year in March last. His father and grandfather, both named Valentine, kept an apothecary store in Berlin, Germany, and became noted for their researches in chemistry; his brother, who had been raised a pharmacist, was the celebrated analytical chemist, Henry Rose, who died in 1864. Gustavus Rose studied mineralogy and chemistry in Berlin and Stockholm; in 1821, at the age of 23 years, he became Custodian of the Mineralogical Cabinet of the Berlin University, in 1826 Professor Extraordinary, and in 1839 Ordinary Professor of Mineralogy. In 1829 he and Ehrenberg accompanied Alexander Von Humboldt upon a scientific journey to the Ural Mountains and the Caspian Sea, which he described in a work of two volumes; his other important publications were all devoted to mineralogy and crystallography.

THE

AMERICAN JOURNAL OF PHARMACY.

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ON THE NEW SYRUP OF THE IODIDE AND TINCTURE OF THE CHLORIDE OF IRON.

By Joseph P. Remington.

The so-called tasteless iron combinations, which have recently been brought to notice by J. L. A. Creuse, of New York, have attracted much attention of late, and an entire revolution in the manner of making a most useful class of preparations has been threatened.

The advantages claimed for the innovations are numerous: freedom from *nauseous* taste (they cannot certainly be called tasteless), ready solubility in water, non-liability to change in dispensing, little or no destructive action on the teeth, miscibility without decomposition with bark and other desirable tonic preparations.

Setting aside for the present the theories which may be brought forward to prove their composition (the rationale of new compounds often being mere collections of symbols twisted into a shape that will explain on *paper* a reaction), the first thoughts that occur to a practical pharmacist in connection with them, are:—

Can they thoroughly replace the old and disagreeable remedies that have been prescribed for years past?

Can desirable processes be devised, whereby every pharmacist may make in his own store the new preparations?

Is the claim for stability sustained by experience?

It is the intention of the writer to attempt to answer these questions.

First, in regard to replacing the old remedies. Iodide of iron has been used constantly since 1824, and it is regarded as one of the very best alterative and tonic preparations; yet the objections to its use are numerous, and were it not for its intrinsic merit it would have slept long ago in an unhonored grave; it is always unpleasant to take, even when freshly prepared, and becomes more so as it gets older.

In practice, but few pharmacists prepare their own syrup; reliance is placed on the general market, and the results, of course, are variable. A syrup one week or two years old may be purchased, possessing various degrees of color and acridity (agreeing better, however, in the latter quality), and neither the patient nor physician are probably aware of the cause, and practitioners are frequently debarred from prescribing for delicate persons and children on account of the disturbance to the digestive organs.

The new syrup of the iodide of iron does, in the writer's opinion, remove the objection to the old preparation. It has fallen to my lot to make about twelve gallons of the improved syrup at various times, which has been dispensed, and has been used by physicians in their practice for the usual diseases where the old syrup was indicated.

It seems to answer well in scrofulous and syphilitic diseases, in obstinate skin affections, and as an internal remedy where morbid secretions of the glands exist, but particularly for delicate females and children of scrofulous habit requiring an alterative tonic. Its taste is pleasant, the teeth are not discolored and the digestive functions were not disturbed by its use in any of the cases that were reported. A formula for the preparation is subjoined, which is based on the researches of Creuse in this direction.

New Syrup of the Iodide of Iron.

Take of—

Re-sublimed iodine, ...	378·9 grains.
Iron wire (card teeth), ...	90 "
Distilled water, ...	2 fluid-ounces.
Citric acid (dry), ...	408 grains.
Potassium carbonate (pure), . . .	475 " or q. s.

Weigh accurately 252·6 grains of the iodine, and place in a beaker or flask of at least four fluid-ounce capacity, then add to it the card teeth and half a fluid-ounce of distilled water, cover the beaker with a watch glass, and agitate occasionally until the liquid has acquired a green color and lost the smell of iodine (care should be taken about this point; all the iodine should be in the state of a ferrous salt), filter the liquid from undissolved iron, rinse the iron with a small quantity of the distilled water, pour on the filter, and finally rinse the filter; now add to the filtrate the remaining 126·8 grains iodine, and allow it to dissolve; it forms a rich ruby red solution. Place 406 grains of the citric acid in a small evaporating dish, add one and a half fluid-ounces of distilled water, and apply heat until the acid dissolves and the liquid boils; without removing from the fire add, by small portions, sufficient potassium carbonate to neutralize, avoiding an excess; if a slight excess should happen to be present, correct it by adding the two grains citric acid reserved; now pour as much of this solution of potassium citrate while hot into the red solution as will change the color to a bright green, and make up the measure to twenty-six fluid-ounces with simple syrup. The finished syrup contains about five grains of the salt in each fluid-drachm, and the dose would be from one-half to one teaspoonful.

The new tincture of the chloride of iron can replace the old, with advantage, in most cases where the tonic effects are alone desired, without any styptic action.

New Tincture of the Chloride of Iron.

Liq. ferri chloridi, U.S.P., . .	1 fluid-ounce.
Citric acid, ...	544 grains.
Sodium carbonate, ...	1000 " or q. s.
Water (distilled), ...	1 fluid-ounce.
Alcohol, ...	a sufficient quantity.

Dissolve the citric acid in the distilled water, and heat to the boiling point, gradually adding the sodium carbonate until the acid is saturated (the quantity varies with the amount of moisture present in either), mix with the iron solution, which will now acquire a beautiful green color, and make up the measure to four fluid-ounces with alcohol.

One of the strongest points in favor of this series of preparations is that they can be made to offer a great variety of desirable combinations. The finished green solution of iodide of iron may be evaporated at a low heat, and, as suggested, a salt formed which can readily be made into pills of three grains each, and, of course, requiring no insoluble coating to protect them; it may be dissolved in water in almost any quantity, forming a simple solution, or in syrup to form a syrup of the iodide of iron of any required strength. It may be administered in combination with compound tincture of cinchona and compound tincture of gentian, or it may really, *when added*, put some virtue in the numerous tonic elixirs that are being prescribed so largely throughout the country.

A formula is appended for an elixir which has acquired some sale in this city. The writer does not wish to be considered as endorsing it, however.

Elixir of Gentian with Chloride of Iron.

Tincture of chloride of iron (new)	6 fluid-drachms.
Tincture of cardamom, ...	½ fluid-ounce.
Fluid extract of gentian.	3 fluid-drachms.
Alcohol, ...	2 fluid-ounces.
Oil of cinnamon (true), ...	1 drop.
" coriander (fresh)	1 drop.
" anise, ...	1 drop.
" orange, ...	3 drops.
Simple syrup, ...	3 fluid-ounces.
Water, sufficient to make 16 fluid-ounces.	

Dissolve the oils in the alcohol, and having mixed the other ingredients together, incorporate all thoroughly, adding sufficient water to make one pint, and filter. Dose: A dessertspoonful. This preparation contains five minims tincture of the chloride of iron in each dose; enough gentian is present to flavor the elixir somewhat, and give it part of a name, and not enough to injure the greatest desideratum—a pleasant taste.

ON LACTIC ACID.

By Charles Rice.

The quality of lactic acid of commerce, has, during the last few years, undergone a decided improvement, owing to an increased demand and to better care in its preparation. While it was formerly no uncommon occurrence to obtain a highly colored, ropy and opalescent acid, sometimes of a strong butyraceous odor, and evidently of considerable age, we now generally get a good article at about half the former price. The extensive and constantly increasing use of lactates and lactophosphates has been the main cause to bring about this result. But even now we occasionally meet with an acid which, though in appearance quite unimpeachable, yet does not fulfil all the requirements which are demanded by critical pharmacy.

Our market is supplied with lactic acid from Europe, chiefly, if not exclusively, from Germany; although attempts have been made to manufacture it in this country, yet the greater outlay for material, wages, etc., has made it impossible for our manufacturers to compete with those abroad. Being therefore dependent upon foreign makers, it becomes so much more our duty to watch its quality, and to reject any which does not come up to the standard fixed by our Pharmacopœia.

Some time ago, while engaged in converting some lactic into oxalic acid by means of nitric acid, I noticed, after neutralization of the solution with ammonia, a small quantity of a white precipitate, which was found, on examination, to be oxalate of lime; and on examining the remainder of the same lactic acid, the presence of lime was unmistakably established. Unfortunately, the bottle had been deprived of its original label, so that its source could not with certainty be determined, but the result arrived at led me to reserve a few samples of different lots, in order to ascertain their purity and comparative strength.

Before stating the results of my investigation, I wish to give, side by side, the definition and remarks of the United States and German Pharmacopœias:

U. S. Pharmacopœia.	*German Pharmacopœia.*
A syrupy, nearly transparent liquid, of a pale wine color, having a slight bland odor and a very sour taste. Its sp. gr. is 1·212.	A syrupy, colorless or yellowish, odorless and acid liquid, of the sp. gr. 1·24. Is charred at a strong heat, burns with a bright flame, and is volatile without residue.
It unites in all proportions with water, alcohol and ether.	Soluble in water, alcohol and also in ether.
	Mixed with solution of permanganate of potassium, and gently heated, it diffuses the odor of aldehyde.
It is not precipitated by solution of acetate of lead or of oxalate of ammonium, and when neutralized with ammonia, affords no precipitate with hydrosulphuric acid.	When diluted with water, it is not made turbid by chloride of barium, oxalate of ammonium, nitrate of silver or hydrosulphuric acid solution.
When gently heated, it yields no odor of acetic or butyric acids. 90 grains of lactic acid are neutralized by not less than 75 grains of bicarbonate of potassium. When treated with a caustic alkali in excess, the color is not materially deepened.	When gently heated, it should yield no odor of acetic or butyric acids.

The spec. grav. of pure monohydrated lactic acid is 1·245 at 20° C., or 1·248 at 15° C. It is very frequently quoted in text-books erroneously as having a spec. grav. of 1 215 at 20° C. (*f. i. Kekule, Lehrbuch der organischen Chemie*, i, p. 748. Fownes, Am. ed. 1870, p. 646, etc.) The relative strength of the pure acid and those of the German and U. S. Pharmacopœias may be seen in the following table :

1 eq. or 90 parts of	Saturate of $KO,HO,2CO_2$.	Per cent. of real acid.
$HO.C_6H_5O_5$	100·1 (K = 39·1)	100 per cent.
Germ. Ph. acid.	97·97	97 "
U. S. Ph. acid.	75	74·88 "

The samples which I examined were the following :

1. Merck's acid, bought 1872, of a light yellow color, is a little ropy, has scarcely any odor, and is free from traceable impurities.

2. Merck's acid, bought 1873, of a faint yellow color, is very clear, almost odorless and pure.

3. Trommsdorf's acid (1873) is perfectly colorless, brilliant, of a faint ethereal odor, and pure.

4. Gehe & Co.'s acid (1873) is of a straw color, and has a slight butyraceous smell ; otherwise pure.

5. Marquart's acid (1870) is quite yellow, rather thin, has considerable odor, but is otherwise apparently pure.

6. Marquart's acid (1871) is faintly yellow, a little thicker than the other and almost odorless ; pure.

The assay was made volumetrically by standard solution of soda, in each case upon three separate weighed portions, and the figures given below are the mean of three assays. And here I would remark that, in weighing the lactic acid for the purpose of assay or analysis, or whenever great accuracy is required, it is absolutely necessary to guard against its abstracting any moisture from the atmosphere. In this respect it is as hygroscopic as sulphuric acid. It should always be weighed by the method of "subtraction." If a small portion is required to be weighed, introduce a corresponding quantity into a vial provided with a well ground stopper, taking care not to get any on the neck or rim, and weigh ; pour out a quantity deemed to be sufficient, replace the stopper immediately, and slip over the neck a rubber cap, which was previously weighed, together with the vial and acid (an unperforated, well-cleaned rubber nipple answers well), and reweigh: the difference is the amount of lactic acid poured out. Without some such precaution, the small drop of acid adhering to the rim, after pouring out, would rapidly abstract enough moisture from the air to make it troublesome to follow the increase with a delicate balance.

The results of the assay show that nearly all the samples come up to the standard fixed by the U. S. Pharmacopœia. Only the last two samples are short, but in view of the good reputation which Marquart's preparations generally bear, I am inclined to believe that this is owing to the date of the acid, which was made at a time when there was much less demand for it. I did not succeed in obtaining any of his recent acid.

The following table, containing the results of the assay, explains itself:

	Grammes.	Neutralize NaO.	Corresponding to $C_6H_6O_6$.	90 pts. neutralize of $KO,HO,2CO_2$.	Percentage of $C_6H_6O_6$.
Merck's (1872)..........	4·6201	1·1767	3·4162	74·01 pts.	73·93
" (1873)..........	5·2629	1·3616	3·9617	75·31 "	75·23
Trommsdorf (1873)...	6·1233	1·6119	4·6797	76·49 "	76·41
Gehe & Co. (1873).....	4·4124	1·1616	3·3724	75·99 "	75·91
Marquart's (1870)......	3·5920	0·8429	2·4471	68·19 "	68·12
" (1871)......	2·4907	0·6013	1·7457	70·16 "	70·09

New York, August 15, 1873.

UNGUENTUM BENZOINI.

(U. S. Ph. 1870.)

By H. M. Wilder.

In *Medical News and Library*, August, 1873, p. 129, the Editor complains of the above ointment as made according to the U. S. Pharmacopœia of 1870, and cautions against its use as being too irritant. He advocates a return to the old method, by digesting the lard with benzoin and straining, as giving an entirely bland ointment.

Permit me to suggest a slight modification of the officinal process, which I have used ever since I began to make it with the tincture. It happened to me, as to everybody, that the resin separated as soon as all the alcohol was evaporated, notwithstanding diligent stirring. I heated the ointment again *and strained.* It has a nearly white color and the odor of benzoin to perfection, and I never yet heard any complaint as to its being in the least irritating.

Hence the officinal formula might be altered so as to read : . . . "and, when the alcohol has entirely evaporated, strain, and stir occasionally while cooling."

When this first happened to me, I asked a colleague as to his experience : he told me that he obviated the difficulty by not allowing all the alcohol to evaporate; this would make it possible to get a homogeneous ointment. Probably the irritating property is due to the separation of the resin.

Philadelphia, August 6, 1873.

FORMULA FOR TINCTURA VALERIANÆ.

By Charles C. Patterson.

℞.	Valerian in fine powder, . . .	℥ij.
	Water, ...	℥viij.
	Glycerin, Bower's, ...	℥iv.
	Diluted alcohol, ...	℥iv, or sufficient.
	Magnesium carbonate, . . .	℥ss.

Moisten the valerian with 1 oz. diluted alcohol, pack it firmly in a glass funnel, pour on diluted alcohol until 4 oz. are obtained; set this aside. Now mix the glycerin and water and pour it on the valerian; when all has passed mix it with the reserved tincture and triturate it with the magnesia thoroughly and filter. The result is a fine dark tincture with no sediment after long standing. The above formula will suit for all tinctures that produce sediments, and, further, it gives a pleasant taste.

St. Clairsville, Ohio, Aug. 6, 1873.

[Note by the Editor.—If color alone was a sure criterion of the excellency of a pharmaceutical preparation, it would be easy enough to obtain tinctures, etc., by employing a menstruum containing much water or sufficient glycerin, which are sure to dissolve the dark colored so-called extractive constituents contained in most of the officinal drugs. On a critical examination, however, it will be found that the alcoholic strength of most tinctures might, with great propriety, be considerably increased, perhaps at the expense of the deep color, but certainly to the advantage of the truly medicinal principles, the solution and preservation of which is the object of that class of preparations denominated tinctures. We believe that the alcohol in the tinctures of the U. S. Pharmacopœia is weaker than that ordered by any other pharmacopœia, and that fact alone should invite to comparative experiments, not with the view of ascertaining the amount of extract dissolved, but to determine the percentage of the definite active principles taken up by the different menstrua.]

REACTIONS OF SAPONIN.*

By Dr. Hermann Koehler.

1. Saponin yields with water an opalescent solution, foaming like soap solution; it is insoluble in ether, but soluble in petroleum ether, benzin, chloroform, alcohol and amylic alcohol.

2. Concentrated sulphuric acid yields with it a carmine red, faintly brownish solution, which becomes violet blue on the margin after about fifteen minutes.

3. The addition of bichromate of potassium changes this color to dirty green.

4. Saponin dissolves readily and completely in diluted and concentrated nitric acid with a yellow color.

5. The addition of bichromate to this solution produces no change.

6. On boiling saponin with concentrated phosphoric acid, a characteristic odor or coloration is not produced.

7. Bichromate, added after the phosphoric acid, produces no change.

8. Evaporated with muriatic acid, saponin yields a gray jelly; bichromate merely darkens the liquid.

9. Saponin gives with acetic acid, with difficulty, a colorless solution, in which no change is produced by bichromate.

10. Saponin is split, like other glucosides, by dilute acids.

11. Ammonia water dissolves saponin in the cold, yielding a foaming solution, from which acetic acid reprecipitates saponin.

12. Caustic soda dissolves saponin, but the solution is less clear and foams like soap solution. Acetic acid reprecipitates it.

13. Potassa behaves precisely like ammonia and soda.

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* Die lokale Anæsthesirung durch Saponin; Halle, 1873. Translated from Neues Jahrbuch für Pharmacie, 1873, June.

14. A similar behavior have the carbonates of the alkalies.

15. Bicarbonates of the alkalies have an analogous behavior.

16. Tincture of galls produces in solutions of saponin a whitish flocculent turbidity, which disappears on boiling.

17. A similar whitish turbidity is obtained with ferridcyanide and with sulphocyanide of potassium.

18. Ferrocyanide of potassium does not alter the solution of saponin.

19. Iodide of potassium,

20. Bichromate of potassium, and

21. Picric acid produce no change in solutions of saponin.

22. Hydrate of barium yields a white precipitate, which is insoluble on boiling, and cakes together.

23. Subacetate of lead causes a white voluminous precipitate, caking on boiling.

24. Saponin separates mere traces of suboxide of copper from alkaline copper solution; pure sulphate of copper is not affected.

25. Acetate of zinc,
26. Ferric chloride,
27. Arsenious acid,
} produce in solutions of saponin white precipitates, which do not disappear on boiling.

28. On boiling saponin with solution of nitrate of silver, the latter is slowly reduced.

29. Chloride of gold, and

30. Corrosive sublimate give no reaction with saponin. M.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

On the Color of Tincture of Litmus in Yellow Sodium Light.—L. D'Henry has observed that the yellow-colored light produced by a Bunsen burner with table salt, causes red tincture of litmus to appear colorless, while the blue litmus tincture has a black and ink-like appearance. This difference in the color is so marked that he considers it by far easier for the chemist to effect exact neutralisations at night or in a dark chamber, than by daylight. Even dark-colored syrups may thus be neutralized, without diluting them, the point of saturation being very readily observed, notwithstanding the coloration of the liquid.—*Pharm. Cent. Halle*, 1873, *No.* 27, from *Polyt. Notizbl.*

Detection of Fuchsin in Fruit Essences.—C. Puscher recommends to dip a woolen or silken thread into the essence or syrup, the coloration from real fruit juice is afterwards easily washed out with water, while fuchsin, if present, dyes wool and silk of a rose color.—*Ibid. No.* 28, from *Ibid.*

Detection of a Falsification of Milk or Cream with Starch.—Hager refers to his former observation,* that the lacto-protein globules have the property of rapidly combining with iodine, and of decolorizing the solution of the latter. If the milk has been sophisticated with starch, solution of iodine will react upon the latter only after the milk has been entirely saturated with iodine, when the characteristic blue coloration will appear on the further addition of this reagent.—*Ibid. No.* 29.

Powdered Gum Arabic.—The well-known fact, that finely-dusted gum arabic is not so well adapted for oil emulsions as the sanded powder, is explained by Hager as follows: To obtain a dusted powder it is requisite that the gum should be thoroughly dried at an elevated temperature, so as to lose almost ten per cent. of its natural humidity; after such an exposure the gum has been altered to such an extent that it will now reduce alkaline copper solution at a moderate heat, and does not dissolve rapidly enough in water. Gum, to obtain a sanded powder, should be dried at about 30° C. (86° F.), until the pieces have lost 2, or not over 2.5 per cent. of moisture.—*Ibid.*

French Putty, discovered by Ruban of Paris, is prepared as follows: 7 ℔ of linseed oil are boiled for about two hours with 4 ℔ of brown umber, after which 2 oz. of finely cut wax are added; the mixture is removed from the fire, and 5½ ℔ prepared chalk and 11 ℔ of white lead are well incorporated. This putty is said to be very durable, and can be used on frames without oiling them previously.—*Ibid.* from *Polyt. Notizbl.*

Rapid Filtration.—A simple contrivance, acting upon the same principle as Bunsen's filter, has been proposed by E. Fleischer. A wide-mouthed bottle is closed with a rubber cork, twice perforated; into one of the perforations the funnel is fitted, while a short glass tube, bent at a right angle, is inserted into the other, and lengthened by means of a piece of rubber tubing with spring clamp attached. The filter is capped with a small filter, then inserted and well moistened so as to rest against the funnel: afterwards, the liquid to be filtered is poured upon it, and the air in the receiving bottle rarified by sucking through the rubber tubing, which is then closed by the clamp.—*Chem. Cent. Blatt.* 1873. *No.* 23, from *Journal f. prakt. Chemie.*

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* American Journal of Pharmacy, 1869, p. 405.

Couch Grass, (*Triticum repens, Lin.*)—Dr. H. Müller corrects a statement made by Ludwig and himself last year* to this effect, that the rhizome of the grass named contains only one kind of sugar—fruit sugar—and no dextrose. Four samples of the rhizome yielded him the following amounts of levulose: 2.45, 2.70, 2.81 and 3.33 per cent. After preparing the extract of *Triticum repens* during warm weather, lactic acid is found in it, which, however, does not pre-exist in the rhizome, but is formed in consequence of fermentation. The peculiar gum mentioned in the former paper was, by further experiments, ascertained to be a peculiar principle, named triticin, which resembles inulin in its optical behavior and in its transformation into levulose by combining with water. It is prepared by exhausting the rhizome with 25 per cent. alcohol, precipitating with subacetate of lead, freeing the filtrate from lead by sulphuretted hydrogen, evaporating to a syrupy consistence and precipitating by several volumes of alcohol. The precipitate is redissolved in water, purified by subacetate with some carbonate of lead and again precipitated by alcohol. This process is repeated several times, until the aqueous solution of triticin ceases to be rendered turbid by the lead solution; it is then purified by animal charcoal, and finally by dialysis.—*Archiv d. Pharm.* 1873, *June.*

Behavior of some Alkaloids to Sugar and Sulphuric Acid.—R. Schneider describes a series of experiments. If a few milligrams of morphia are mixed with six or eight times the quantity of sugar, and one drop of concentrated sulphuric acid be added, the mixture becomes at once purplish red, and passes after fifteen or thirty minutes through violet blue, dirty blue green into dirty yellow. Water added to the purple solution causes its rapid decolorization. If milk sugar be used instead of cane sugar, the coloration is much fainter and pale rose-colored. One-tenth of a milligram gives an intense reaction: it is still distinct with one-hundredth of a milligram, but does not last long. Codeia has a similar behavior, needing, however, a less concentrated acid; the two alkaloids are distinguished by chloroform, which dissolves codeia from alkaline liquids. The other opium and the cinchona alkaloids, as well as strychnia and brucia, show no characteristic reaction, but, like pure sugar, merely give a brown color, except quinia, which gives a greenish yellow coloration and a more intense fluorescence. A mixture of quinia and morphia behaves like pure morphia. Atropia, colchicia, emetia and picrotoxin produce no peculiar effect. Aconitia, with sugar solution and concentrated sulphuric acid, gives a nice rose red coloration on the margin, changing rapidly into dirty violet and brown.—*Ibid.* from *Poggend. Annalen.*

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* See American Journal of Pharmacy, 1872. p. 353.

Dried Meat for Medicinal Purposes is prepared by Dannecy of Bordeaux by cutting fresh meat finely, spreading upon muslin, drying rapidly in a current of air and rubbing into a brown powder, which is almost inodorous, and has a slightly saline taste.* It is readily taken by patients, spread upon bread, or a teaspoonful of it mixed with a cupful of broth or soup, or by children, if baked into biscuits.—*Ibid.* from *Bullet. Génér. de Thérap.* lxxxii.

Impurity in Corrosive Sublimate.—Bultot of Liége met with corrosive sublimate which, on dissolving in water, ether and alcohol, left a yellow residue, while the solutions in the last two solvents had a reddish color. Further examination showed that the salt had most likely been made from the residuary liquids employed in the manufacture of anilin colors.—*Journ. de Pharm. d'Anvers*, 1873, *June*, from *Archives Médicales.*

Glycerite of Lime used in Burns is said by De Breyne to soothe the pain and to prevent inflammation or diminish its intensity; it is prepared from recently slaked lime, one part; glycerin, fifty parts; chlorinated hydrochloric ether, one part.—*L'Union Pharmac.* 1873, *June.*

The Toxical Effects of Iodide of Tetramethylammonium and Tetra-

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* This process has been used by the Hudson's Bay Company more than twenty years ago (See American Journal of Pharmacy, 1853, p. 225), and a similar process was patented in England in 1866 to Dr. A. H. Hassall. See American Journ. Pharmacy, 1867, p. 445.—Editor Amer. Journ. Pharm.

mylammonium have been proven by Rabuteau by injecting their solutions subcutaneously. His results are, that they paralyze the extremities of the motor nerves, and that they act on the muscular contractility and sensibility similar to curare.—*Journ. de Pharm. et de Chim.* 1873, *July*.

TINCTURE OF KINO.

By R. Rother.

For what object the pharmacopœia incorporates such a multiplicity of simple astringents, is only a parallel question that can be advanced on numerous other incomprehensible and probably unanswerable positions held by the pharmacopœia.

Whatever the special merits of catechu, kino, nutgall, rhatany, cranesbill, blackberry, logwood and pomegranate fruit rind may be, is easily summed up in the individual belief of this and that practitioner. But that any of these bodies should have peculiar medicinal virtues not possessed by the others is only a finely drawn hypercritical assumption, based mainly on whimsical favoritism at random conferred, but unsupported by therapeutical difference of quality, in the object of choice.

The tinctures of catechu, kino, nutgall and rhatany are officinal, together with a syrup of blackberry, syrup of rhatany and fluid extracts of blackberry, geranium and rhatany. Now either of these astringents is fully capable of replacing any of the rest. They owe their astringency in every case to the presence of some variety of tannin, the only characteristic property of which is identical to the peculiar astringent property of pure tannin. Consequently, pure tannin, or nutgall, its source, is upon reasonable supposition superior as a pure vegetable astringent to the other often doubtful and frequently unreliable substitutes, in the shape of catechu, kino, etc.

However, tincture of nutgall is not much employed for internal use, but a syrup of nutgall, not officinal, but much used in many localities, is highly prized. Catechu is a cheap substance, and when of good quality, is rich in tannin; yet it is not so popular as kino, which, somewhat stronger in tannin, though very unstable in solution, has heretofore been very expensive, and consequently subject to adulteration.

Much difficulty is found in preserving tincture of kino from gelatinizing. Numerous remedies have from time to time been proposed; namely, it was thought that the addition of logwood could prevent the change; alkalies were also tried, but they change the tannin and destroy the astringency. Glycerin came in for its share, perhaps with good effect, and filtration through magnesium carbonate was also suggested. The application of sugar has so far not yet been made; and since the sugar does not prevent an abundant precipitation, in syrup of blackberry, it will perhaps be of little use here. But all concur that an aqueous solution is above all others the most objectionable.

In the administration of these remedies, a large proportion of alcohol is objectionable; nevertheless, alcohol is by all means and pre-eminently the best solvent and most efficient preservative of tannin and its varieties. The writer takes occasion to propose it here as emphatically preferable to any other menstruum, and the stronger the alcohol, the better it conforms to the object in view.

Strong alcohol exhausts kino more rapidly and efficiently than any other solvent, and the solution never gelatinizes, as it seems that the presence of water, together with a pectase-like substance, causes the deterioration of the tincture. Now as strong alcohol excludes this substance, by reason of its insolubility in this menstruum, consequently a tincture prepared by exhausting kino first with strong alcohol, and diluting the solution moderately with water, that is, so as to bring it to the officinal alcoholic strength, will retain its astringency and fluidity unimpaired by age.

The writer, however, prefers a stronger tincture than the officinal, both in regard to the alcohol and proportion of kino. If the strength of the tincture of kino is doubled, which can be most readily accomplished by means of strong alcohol, the dose will be only half as large by measure, and, therefore, even less alcohol will have to be taken, together with a certain amount of kino, than in the officinal tincture. The mechanical effect of strong alcohol in the exhaustion is also a point of much importance, because the officinal method of manipulation is really a very poor one. The application of sand for effecting a distribution of the powder, which, with the use of the officinal menstruum, rapidly agglutinates, is the veriest nonsense. When a powder cannot be practically percolated alone without producing an agglutinated mass, the intervention of an insoluble solid is not of much avail. Such material can only be satisfactorily exhausted by maceration, either by resorting to the rotation method, or suspending the material in the upper portion of the liquid, by the aid of a net, similarly to the process much used for dissolving the licorice in sticks.

With the employment of strong alcohol, the powder dissolves at once, without cohering in the least; a short period of trituration suffices to effect complete solution of the total soluble matter.

The liquid does not filter readily, but runs through a strainer perfectly clear, leaving the insoluble residue, even after pressure, entirely in the strainer.

The writer prepares tincture of kino as follows:

Take of Kino, 3 troy ounces.
Strong alcohol,
Water, of each sufficient.

Place the kino into a spacious mortar, and triturate it thoroughly; then pour on to the powder half a pint of strong alcohol, and continue the stirring a short time; pour off the clear liquid, after the residue has subsided, and add half a pint more of strong alcohol; triturate again as before, and unite the whole with the first solution; set the mixture aside for about half an hour, shaking it up frequently, then pour the whole of it upon a muslin strainer, and press out the liquid; to the residue add 3 fluidounces of strong alcohol; press it out again; unite the strained liquids, and complete the tincture by adding water to the measure of 2 pints, and mix.—*The Pharmacist, August*, 1873.

ETHEREAL TINCTURE OF IODOFORM.*

BY MM. ODIN AND LEYMARIE.

At the request of Dr. Gubler, who uses an ethereal solution of iodoform as a topical application, the authors sought to ascertain the most favorable conditions for its preparation, and to determine the relative proportions in which the iodoform is soluble.

(1.) A solution prepared in a flask of white glass after a little time became discolored; the canary yellow passed to an amber, and then brown color. This change was the result of the liberation of a portion of the iodine, which colored starch paper blue.

(2.) When iodoform previously pulverized was used, the solution, exposed to diffused light, altered much more quickly than the first.

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* Repertoire de Pharmacie, June 25, p. 370.

(3.) When two ethereal solutions were made simultaneously, the one with crystallized iodoform, the other with powdered iodoform, and using red glass bottles, the first preserved its yellow tint, the second assumed a brown color after a few days.

Solubility.—Experiments were made with pure ether of 65° Baumé (sp. gr. ·724), and also with ethers of 62° and 56°, the temperature being 13° C. Eight grams of tincture obtained with these ethers contained iodoform in solution respectively to the following extent:—

Ether of 65° Baumé . .	1·61 grams.
" 62° " .	1·26 "
" 56° " . .	1·13 "

The iodine being equal in the first case to 25·195 per cent. of the ether; in the second to 18·694 per cent., and the third to 16·044 per cent., or in round numbers, at 65° B., one-fourth; at 62° B., one-fifth, and at 56° B., one-sixth.

The conclusions drawn by the authors from the foregoing experiments are—

(1.) To employ iodoform in the crystalline state.

(2.) To make the solution in a *red* glass flask by simple agitation.

(3.) To use the following proportions:

Crystallized iodoform . .	1 gram.
Ether (60° Baumé) . . .	4 grams.

Pharm. Journ., Aug. 2, 1873.

NOTES ON THE MEDICINAL PLANTS OF THE RUTACEÆ.

By John R. Johnson, A. L. S.,
Curator of the Museums, Kew.

The Natural Order *Rutaceæ*, as at present constituted—that is, including as tribes such groups as *Zanthoxyleæ* and *Aurantieæ*, which by former botanists have been dignified as Natural Orders—includes a great number of medicinal and economic plants; for besides such well-known articles as rue, buchu or barosma leaves, and cusparia bark, many others of less repute are brought together. We purpose to refer to those which, though being used by the natives of the countries in which they grow, are seldom seen except in museum collections in this country, and some not even there. In the tribe *Cusparieæ*, besides the genus *Galipea*, which is, of course, well known as the source of cusparia bark, occurs *Ticorea*, two species of which are medicinal in Brazil. *T. febrifuga*, St. Hil., a tree of about twenty feet, has a very bitter and astringent bark, and is used as a substitute for cinchona in intermittent fevers. In the province of Minas Geraes it is known as *Quina* or *Folhas brancas*. The leaves of *T. jasminiflora*, St. Hil., also a tree about twenty feet high, growing in the same country, are boiled by the natives for the sake of the juice, which they value as a medicine. *Peganum Harmala*, L., is a powerfully disagreeable-smelling herbaceous plant, common in Southern Europe, Asia Minor, and throughout Scinde and the Punjaub. In Turkey the seeds are used as a vermifuge, and in the Crimea the Tartars collect them for the same purpose. In the Pharmacopœia of India it is stated that "these seeds have long held a place in Eastern materia medica as a stimulant, emmenagogue, and anthelmintic. Mild narcotic properties have also been assigned to them, and, according to Kæmpfer, delirium characterized by cheerfulness follows their use in some cases. Further investigations as to the properties of these seeds are desirable."

The European dittany (*Dictamnus albus*, L.), a plant sometimes cultivated in gardens for the sake of its handsome flowers and fragrant leaves, is well known for the abundance of volatile oil or resinous matter, which is secreted in such large quantities that the plant not only ignites on the approach of a lighted candle, but the air surrounding the plant becomes itself inflammable in hot weather. The root is resinous, bitter, tonic and stimulating. *Monnieria trifolia*, L., a shrubby plant of Guiana and Brazil, has an aromatic and acrid root, much prized by the natives as a diaphoretic, diuretic and alexipharmic. The leaves of species of *Adenandra*, a South African genus of plants, having the habit of the common rue, are used at the Cape for the same purposes as those of *Diosma*, while in Australia the leaves of some of the species of *Correa* are used as tea. They are handsome, shrubby plants, and are in cultivation in greenhouses in this country.

The genus *Zanthoxylum*, the type of the tribe *Zanthoxyleæ*, has a wide geographical range, and a variety of applications. In India, the fruits of *Z. alatum*, Roxb., *Z. hastile*, Wall., and *Z. Budrunga*, DC., are all articles of the native materia medica. They are aromatic and pungent, and are said to possess stomachic and carminative properties. *Z. Rhetsa*, DC., a large spreading tree, growing on the mountainous parts of the East Indian coast, has its unripe capsules and small berries of a gratefully aromatic taste, somewhat like the skin of a fresh orange; the ripe seeds have a pungency somewhat like pepper, and the inward part has an acid bitter taste. The name *Rhetsa* is said to signify in the Telinga language a committee, and alludes to the fact that, under the shade of this tree, the hill people assemble to deliver discourses and to consider and discuss matters of public concern. In China the root of *Z. nitidum*, DC., is aromatic, and is used as a sudorific, emmenagogue and febrifuge; the leaves also are used as a condiment on account of the volatile oil they contain. The fruits of *Z. piperitum*, DC., are known as Japan pepper; they are of an agreeable aromatic flavor. In the West Indies the barks of *Z. ternata*, Desv., and *Clava-Herculis*, L., are regarded as antisyphilitic, and the bitter astringent leaves are used as a vulnerary. *Z. fraxineum*, Willd., is known in America as the prickly ash or toothache bush, from its reputation as a masticatory in curing toothache. The bark is officinal in the United States, and as seen in the shops is in small quills varying from a line or two to about an inch in diameter. It is of a darkish grey color with occasional lighter patches and covered with fine transverse cracks, and in the younger pieces the prickles are sometimes remaining. It is light, brittle, and has at first a somewhat sweetish aromatic taste, which changes to a bitter acrid flavor; this acridity is extracted either by boiling water or alcohol. The bark is stimulating, producing a sense of heat in the stomach. It is also said to be a "powerful sudorific and diaphoretic, and to have been used successfully in paralysis of the muscles of the mouth." In chronic rheumatism it is very highly extolled, and is given in the form of a powder, a dose being from ten grains to half a drachm repeated three or four times a day. A fluid extract has likewise been prepared and administered in doses of from fifteen to forty-five drops. A favorite form of administration, however, is a decoction prepared by boiling an ounce of the bark in three pints of water until it is reduced to a quart, a pint of which should be taken in divided doses during the twenty-four hours. A tincture made from the berries is sometimes employed as a carminative in doses of ten to thirty drops, which can be increased if the stimulating effects are desired.

In New South Wales, *Geijera salicifolia*, Schott, a moderate-sized tree, is known as the "Balsam Capivi Tree," from the strong flavor of that balsam which pervades the bark. I am not aware whether or not it is used in medicine, but a good ink is said to be prepared from the bark. *Esenbeckia febrifuga*, Mart., or *Evodia febrifuga*, St. Hil., a native of the forests of Brazil, is remarkable for its extremely bitter bark, which is used as a tonic and febrifuge; while *Toddalia aculeata*, Pers., a moderate-sized shrub, widely dispersed through Tropical Asia, has considerable reputation as a stomachic and febrifuge, all parts of the plant being used. In India the bark of the root is officinal, and is used as an aromatic tonic and stimulant "in constitutional debility and in convalescence after febrile and other exhausting diseases." It is given in the forms both of tincture and infusion. The following notes on the value of *Toddalia* root-bark are from the "Appendix to the Indian Pharmacopœia:" "Strong testimony to the value of *Toddalia* root is borne by Dr. G. Bidie, who states that though he has not employed it as a febrifuge, he can speak with confidence as to its great value as a stimulant and tonic. Every part of the plant, he remarks, has a pungent. bitter taste and a pleasant aroma, but these qualities are most marked in the root. The dried root-bark is of a yellowish-brown color, and retains its pungency and bitterness for a long time. The whole plant possesses active stimulant, carminative and tonic properties; and he adds that he knows of no single remedy in which all these three qualities are so happily combined. This article possesses additional interest from having been identified by M. Guibourt with *Lopez root*, which formerly enjoyed considerable repute in Europe as a remedy for diarrhœa. Mr. Daniel Hanbury, from examination of genuine specimens of the root, confirms M. Guibourt's views." The natives also prepare a liniment by frying the root and green fruits in oil, which they consider good for rheumatism. The fresh leaves are likewise eaten raw in stomach complaints, and the ripe pungent berries make capital pickles. The bark, root and leaves of *Murraya Königii*, L., a small East Indian tree, are used in native practice as a tonic and stomachic: the young leaves of this species, as well as those of *M. exotica*, L., are used to flavor curries. In Mauritius the latter are said to impart a flavor superior to that of bay-leaf, while in India they further have the reputation of aiding digestion.

The wood-apple tree, or elephant apple of India, *Feronia elephantum*, is the only species of the genus, and is common in India, Ceylon and Java. The fruit is hard and woody, globose, about the size of a large orange: the pulp is used in India in cases of dysentery and diarrhœa. The leaves smell like anise, and are used in native medicines as a stomachic and carminative. A decoction of the unripe fruit is said to act as a powerful astringent, and the ripe fruit as an antiscorbutic. A gummy substance flows from the stem when wounded, which is used by painters for mixing with colors, also in dyeing and for making ink and varnish, as well as by bricklayers in preparing a fine kind of whitewash. This gum occurs in irregular, reddish-brown, semi-transparent tears; powdered and mixed with honey, it is used in dysentery and diarrhœa. The Bael fruit (*Ægle Marmelos*, Corr.) has been brought into notice in this country recently; it is imported in slices, dried, or in quarters or pieces with the rind still attached. The entire fruit is round, somewhat resembling a large orange. It is officinal in both the British and Indian Pharmacopœias, and is used in India "in atonic diarrhœa and dysentery; and in the advanced stages of those diseases, in irregularity of the bowels, and in habitual constipation, it is a remedy of much value." It is administered in the forms of a mixture and an extract; those prepared from the dried fruit, as seen in this country, are said to possess much less medicinal power than those prepared in India from fresh fruit. It will be needless to recapitulate all that has been said and written on the medicinal value of this fruit, as they will be fresh in the minds of the readers of the Journal, many of whom have likewise probably tested the article itself.

In concluding these notes it only remains to mention two or three plants, the properties of which are little known, but which are nevertheless reputed to be useful in their native countries; thus, for instance, *Hortia brasiliana*, Vand., is said to possess febrifugal properties and to be used in Brazil. The leaves and shoots of *Ptelea trifoliata*, L., a North American shrub, are used in infusion as an anthelmintic, and the aromatic fruits are said to be a good substitute for hops. *Casimiroa edulis*, a tree of Mexico, has a bitter bark, which, together with the leaves and seeds, are used as a medicine when burnt and reduced to a powder.—*Pharm. Journ. and Trans.*, *May* 31, 1873.

THE DATE TREE AND ITS PRODUCTS.

By Gastinel Bey.

The date has been known from the farthest antiquity. It flourishes in all the vast regions of the Tropic of Cancer from the Atlantic

Ocean to the valley of the Indus, between the 12° and 37° N. latitude. Throughout this immense space, it is, like the bamboo in Eastern Asia and the cocoanut in the equatorial regions, the most precious gift of nature to man, for it contributes to all his most essential wants: food, clothing, lodging, cooking utensils, etc. The date is certainly the most common tree in all the valley of the Nile, and is found in greatly increasing numbers from the village of Ibrim in Lower Nubia to the Mediterranean. A remarkable peculiarity shown by the date tree of Lower Nubia is that from the top of the roots several stalks grow, to the number of from three to fifteen, which constitute a group of stipes, more or less divergent, nearly all of the same height, and amongst which are found males, that nature seems to have placed there for the fecundation of all the group. The date presents a fine sight, when from amongst the bower of leaves which surmounts it are suspended enormous bunches of fruit, very often furnishing several hundred weight. The dates of Upper Egypt and the Oasis are the most delicate. They are not left to ripen on the tree. After being gathered and exposed several days to the sun, they get ripe, and are then a very fine and sweet fruit, which, by reason of its nutritive properties and easy digestion, is a veritable gift of Heaven, for all find in it a healthy and abundant nourishment. The fresh dates, which are mostly found in quantities in the Cairo markets, are the red dates called in Arabic "Balah ayany," and the yellow sugary dates called "Balah ama'at." The first take their name from a village of Upper Egypt, from whence they come, and the others are collected at Bedrechyn, Zaggarah and Ghyza. These dates are of a dark yellow, smaller than the first named, and soon pass into acid fermentation. But the largest quantity of dates are not eaten fresh. A great part are dried for consumption during the winter, or for export to foreign countries. These are pressed in large masses, which keep perfectly well, and from which are prepared cakes of a very fine taste. The Arabs of Sinai make a date cake, into which they put almonds, and then wrap it in gazelle skins; these sacks of date cake are sold in Cairo during the winter. In Egypt the date trees produce several varieties of fruit, which differ from each other in size, form, color, season of ripening, the nature of the drupe, being more or less sweet, and their facility of keeping. All these circumstances have established upwards of twenty varieties of dates, to which the Egyptians have given more or less ridiculous names. It is not for its fruit alone that the date tree is valued; all its parts are utilised and of great service. Thus the trunk, in Arabic Guishé, is the wood, which, after having been split in two parts, is employed for the different wants of agriculture, and is used for beams in the construction of houses. The branches (Dierid), or rather the leaf stalks, are also used in the construction of houses, by placing them above the beams as joists. A large quantity of useful and cheap articles are also made of them, such as cages for poultry, beds, chairs, supports for divans, seats, bars, baskets, provision chests, etc. The large extremity of the petioles (Taraf-el-Orsoum) is fibrous, and is used, after beating out the fibres, for brooms, etc. The leaflets or folioles (Khou) are used for making mats and baskets for domestic use; fly flappers are also made from it, which, in Europe, are articles of great curiosity. The membraneous sheaths of the base of the leaves, formed by a network of several layers of crossed fibres (lijf), are sufficiently strong to make ropes of, which are used for agricultural and traction purposes. The fibrous stalks or peduncles are also used for rope-making. The fruit (balah or tamr) is not only used for food; by compression a syrup or molasses is extracted, which is largely consumed. In the dry state dates, by reason of their mucilage, are mixed with other fruits, such as jujubes, figs, raisins, known in pharmacy under the name of bechic or pectoral fruits, and from these several very useful drinks are made for affections of the chest. The chemical composition of dates is the same in all varieties, but the proportions vary greatly. The component parts are as follows:—Water, mucilage, gum, vegetable albumen, crystallizable sugar, uncrystallizable sugar, parenchyma, cellulose, and mineral salts. Coumarin ($C_{18}\ H_6\ O_4$) is also found in them; it is a neutral crystalline principle of an agreeable aromatic odor, which is also found in the Melilot and principally in the Tonquin bean, or seed of the *Coumarouna odorata*, which is found in Guiana. In Egypt dry dates are used in the manufacture of alcohol. Those called "Ibrim" of Lower Nubia are preferred. After having removed the stones, the fruit is mashed and steeped in twice its weight of water at a temperature of 25° to 30° Centig., until fermentation has well set in. The fermented liquid is then distilled, and yields weak alcohol of an empyreumatic odor, caused by an oily principle found on the surface of the residue of distillation. By purification of the distilled product, an alcohol is obtained of from 46° to 50° Centig., of which large quantities are consumed, after some gum mastic or essence of aniseed has been dissolved in it. By a prolonged fermentation a good vinegar is obtained. The fine yellow dates of Rosetta and Burlos, when not quite ripe, are preserved and much sought after in Europe, and might become the object of an important commerce. In making this the epidermis is removed, and the two ends cut off; the stone is taken out by means of a small piece of wood, and the fruit thus prepared is boiled in water to soften and separate an astringent principle; they are then put to drain in a basket, after which they are put in a glazed pot. There is then added some hot concentrated essence of sugar, in which they are left for six hours; at the end of this time the syrup, having lost its consistency by reason of its mixture with the water contained in the dates, is put on the fire, and it is concentrated as before. Some more dates are then added, into which torrefied almonds have been placed, or some pistachios instead of the stones, in order to keep them from getting out of shape. It is then boiled again until the syrup becomes more solid, and afterwards put in earthenware pots. After cooling, a little pulverized sugar, impregnated with essence of lemon, is added to flavor it. The stones or kernels (Naoua) are also put to several uses. The nomad Arabs of the deserts, who consume a large quantity of dates, pulverise the stones, which they mix with dates of inferior quality, and make into balls; these, after being slightly dried, are given to their camels for food. The stones of certain kinds of dates like those of Rosetta and Burlos, being rather large, are carved and pierced to make beads for rosaries. They are also greatly used for fuel. It is said that the Chinese mix a quantity of charcoal made from a species of date stone with their Indian ink. They also use this charcoal as a dentifrice. A tree of such great utility as the date ought to be very rarely destroyed. Generally only the males are cut down when they are too numerous, or the females when their great age renders them unproductive; but previously a soft milky sap is obtained from the extremity of the stipe by cutting a horizontal hole in it, deep enough to reach the heart of the tree. A reed is shaped to fit it, which conducts the sap to a vessel. This liquor, called palm milk, ferments in a few hours, and is converted into a sort of wine of a pleasant flavor. The tree is then cut down; the branches and leaf stalks are cut off, and after having removed the woody fibres which surround the cabbage or heart (goumar), this is taken out. It is a terminal shoot, formed of white and tender scaly superposed layers, of the consistence of a fresh almond, which it resembles in flavor. This edible cabbage of the date tree is in great request.

In addition to the foregoing interesting article, the following further particulars are added respecting the date and its products, by the Editor of the *Journal of Applied Science.*

There are some varieties of dates which ripen and decay on the tree, and of which the pulp is leathery and doughy, but the more common become soft and sweet. The date ought to be gathered while still firm and sour, and ought to be placed into heaps in order to undergo fermentation to soften them. The different kinds of fresh dates most often seen in the Cairo markets are the early red dates (balah hayâny) and the yellow sweet dates (balah ama'ât). The date has from two or six to twelve or fourteen *spadices.* But when they are too numerous, it becomes requisite to remove some in order that the tree shall not be weakened or thrown down by the weight of the bunches, and the fruit, being too numerous, would not be of such good quality. Four hundred weight of dates have been gathered from one tree. In no country is the date so productive as in Egypt. The date does not always produce a good crop; it usually happens that after a very large one, the next year they only produce a medium quantity, very often only but a small yield, and sometimes none at all. There are a great many varieties of the date, which differ in the size, form, and quality of the fruit. By color it may be divided into three classes—the red, yellow and white. Those coming from Upper Egypt and the Oasis are the most esteemed. They ripen in Upper Egypt about the end of June, while in Middle and Lower Egypt they are a month or six weeks later. The country from whence the date originally came is not well known. The Arabs say it originated in Arabia Felix. It grows spontaneously in Egypt, and seems to have naturalized itself there from the most ancient times. In the towns—Cairo for example—there are date trees between the houses and around the mosques, or in gardens, the trunks of which are sixty-five feet high. The highest in Cairo was near Kair-Nil, and measured eighty-five feet. It was so high that the wind, by dint of bending it, overthrew it altogether two years ago, and thus the patriarch of date trees, which was remarked by the scientific men who accompanied the Eastern army under General Bonaparte, and which was about two hundred years old, finished its existence. The date is found all over Egypt, and produces excellent fruit. According to Strabo, they were formerly of bad quality in Egypt, except at Thebes, the reason of which was, without doubt, that they were only cultivated and looked after in that region. In the forests, the date is found in hundreds of thousands, this aspect being majestic and sorrowful. On seeing these naked trunks rear themselves to sixty or seventy feet in the air, one is reminded of those delicate columns which the architecture of the middle ages scattered with such profusion in its buildings.

The date is the national tree of the Egyptians, and is one of the most useful to man, in that all its parts are utilised in art, industry, medicine, and domestic economy. Its culture has been improved by the Arabs, who have obtained a large number of fine varieties—as many as thirty distinct ones are enumerated. There are generally four hundred trees per feddan (4,500 square yards). Delile states, in his "Flora of Egypt," that from what he has heard from the growers in the neighborhood of Cairo, it is possible when a tree is old and produces little fruit, to shorten and replant it. A year before this takes place, two pieces of wood are forced into the trunk, in the shape of a cross, at about three yards from the top; the wedges and holes in the tree are then covered with mud, held on by a network of cord. It is always kept damp; every day during the summer a man mounts the tree and waters it. This he does by first climbing to the top of the tree, and then drawing up a pitcher of water, which he throws on the mud. At the end of the winter, radicles are found formed under it. The tree is then cut off below the mud, and planted in a hole near a trench, so that it may be easily watered.—*Journal of Applied Science*, *Aug.* 1, 1873.

NOTES ON THE CULTIVATION AND PREPARATION OF LACTUCARIUM.*

By Thomas Fairgrieve.

Lactucarium—a substance allied to opium in appearance and in physical and physiological properties—is prepared from the milky juice of various species of *Lactuca*. It was introduced into the pharmacy of this country by Dr. Duncan, Professor of Materia Medica, Edinburgh, in the early part of this century; but it had been in use for some time previously in America, on the recommendation of Dr. Coxe, of Philadelphia. Professor Duncan employed the garden lettuce as his source of lactucarium, and his process of preparation was as follows: When the plant reached the flowering period, a portion of the stalk was cut off, and the milky juice which exuded was permitted to harden in the sun. On the following day this hardened juice was secured by cutting a thin slice off the stalk, and to this fresh wound a further quantity of juice flowed and again hardened, and so the process continued from day to day till the plant was exhausted. The thin slices which bore the thickened juice were digested in spirit of wine till a solution of a certain degree of concentration was obtained, which was then evaporated to a thick extract.

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* "Transactions and Proceedings of the Botanical Society of Edinburgh," vol. xi. part 2.

Among later local cultivators were the late Dr. Young of Canonmills, and Mr. John Duncan, of Duncan, Flockhart & Co., who used the wild lettuce, *Lactuca virosa*, as the source from which they drew lactucarium. This plant is still found sparingly on Arthur's Seat, near Dudingston, and is abundant on the rocks of Stirling castle and elsewhere.

For the last sixteen years I have had from one to two acres under cultivation for the preparation of lactucarium. The plant employed is *Lactuca virosa*, var. *montana*, the seeds being sown in autumn, and the young plants planted out early in the following spring. The plant, under favorable circumstances, grows to a height of from 10 to 12 feet, with a stalk of from 1 to 1½ inch in diameter. The flowers appear about the end of July and continue throughout August. The capitulum only expands during sunshine, and as when in fruit the least breath of air wafts away the pappose achenes, the collection of seed is a matter of constant anxiety and attention. In one wet and sunless autumn I was unable to secure a single seed, none having ripened.

In favorable seasons the collection of the juice may commence about the middle of July, but it more commonly is the beginning of August before anything is done. The plants are then from 3 to 5 feet high, with thick succulent stalks, and the flower-buds just appearing. The collectors proceed over the field, cutting the head of each stalk, and scraping the flow of juice into their vessels—one person cutting being followed by two collecting the juice. This process they repeat six or seven times a day, each time a new cut being made a little lower down the stalk. The period of collection generally lasts from six weeks to two months, closing usually about the third week in September; but for the last two years I collected up to the end of

September. Towards the close of the season the plants become so woody and hard that it is with great difficulty new cuts can be made for the flow of the juice. About this time the frosty nights seriously influence the flow of the juice, and determine the cessation of the year's collection. The juice after frost usually becomes of a watery consistence, and when it remains thick, as it sometimes does, it is so deteriorated in quality as to be worthless.

The amount collected during the day is by the evening changed into a thick viscous mass. It is then turned out of the vessels, divided into pieces suitable for drying, and spread out to the influence of a fire, as the sun heat in our climate is not sufficiently strong for the drying process. The time occupied in drying varies according to the heat applied, but I obtain the best results in about five days.

As regards the yield of lactucarium much depends upon the season. In rainy weather no collection can be made; moist warm weather causes the greatest flow of juice, while in dry, hot seasons the stalks are slender, the yield of juice small, but usually of very superior quality. So much does the yield vary that in some seasons the collecting vessel of 8 or 9 oz. capacity is not more than half filled daily, and in other years three such measures-full are gathered each day. Generally six such measures, equal to a little more than 4 lbs of thickened juice, yield 1 lb of solid lactucarium. On an average I calculate each plant yields 40 to 50 grains of lactucarium, but this estimate includes plants of all descriptions. Were the really healthy and productive plants only taken into account, the average yield would be much greater.

A very small quantity of lactucarium is now used in the medical practice of this country, and I do not know the source of demand which I am annually called on to supply.

For many reasons lactucarium cultivation is a precarious industry. Besides its dependence on rainy or dry weather, wind is fatal to the plants in all stages after the stems have shot up. From their first appearance, the plants are also peculiarly liable to be attacked at the root by a species of grub, which causes great havoc.—*Lond. Pharm. Journ. and Trans.*, *June* 7, 1873.

ON THE MANUFACTURE OF CHLORAL HYDRATE IN GERMANY.

By Gustav Detsenyi.

The extraordinary reduction in the price of hydrate of chloral since 1869—from 90 thalers per kilo to 3 thalers—is easily explained when we consider the enormous increase in its production which the demand for it has created. Early in the year 1869, Dr. Liebreich, of Berlin, introduced it as a medicine, and thus gave an impulse to the invention of simpler and cheaper methods of preparing it, and to-day its manufacture has reached such a state of perfection that we can scarcely imagine any essential improvement in it possible. Three years ago it was scarcely possible to prepare a few pounds of chemically pure chloral hydrate in as many weeks; now 500 pounds per day are made in a few German chemical works.

The principal part of the operation is passing chlorine gas into 96 per cent. alcohol. The chlorine is made from muriatic acid and black oxide of manganese. In Schering's establishment, in Berlin, a large crock of stoneware, four or five feet high, is half filled with the black oxide of manganese, and muriatic acid is allowed to flow in. A delivery tube of lead and glass conducts the chlorine thus generated to a Woulfe bottle, where it passes through water, and thence into a carboy containing 120 to 150 pounds of 96 per cent. alcohol. A second carboy is also connected with the first, in order to collect the hydrochloric acid formed.

The chlorine is passed uninterruptedly for twelve or fourteen days, until the alcohol is warmed to 60° or 70° C., and acquires a density of 41° Baumé. This forms one-half of the operation, and requires cautious, conscientious and experienced workmen. Especial attention must be devoted to the luting and to refilling the chlorine generator. The apparatus is luted with a paste of bran flour and water, and the cover of the crock is loaded with heavy weights. Before renewing the charge of black oxide of manganese, the chloride of manganese solution is drawn off by a cock near the bottom, and the chlorine in the vessel allowed to escape by a delivery tube that goes up through the roof into the open air. In the Berlin establishment above mentioned there are forty of these apparatus at work, producing three carboys of chloral per day.

The second pare of the operation consists in the purification of the chloral hydrate. For this purpose the chlorated alcohol, before obtained, is placed in a copper still lined with lead, and capable of holding from 300 to 400 pounds, and mixed with an equal weight of oil of vitriol, and then carefully heated over an open charcoal fire to the boiling point. A considerable quantity of muriatic acid is thus driven off, while the chloral vapors are condensed by an upright cooler. The boiling is continued until hydrochloric acid ceases to be given off, which usually requires seven or eight hours for 150 pounds of chloral. It is worthy of note that in this operation the contaminating alcoholate of chloral is entirely destroyed.

The cooler is now taken away, the still provided with a thermometer, and the free chloral distilled off. At first the liquid boils at 95° to 96° F., and by the time the thermometer rises to 100° all the chloral has gone over, and the distillation may be stopped. The distillate is now rectified in a smaller copper retort or still, holding but 150 to 180 pounds, lined with lead, and provided with a delicate thermometer. Before distilling, the free hydrochloric acid still remaining in the chloral is neutralized with triturated chalk. The distilled chloral is caught in glass flasks, and three ounces of water added to every four pounds of chloral, and cooled rapidly by continuous shaking. If required to be crystallized, it is emptied into large, flat porcelain dishes, and in half an hour forms the large, flat crystals so much in demand in America. These are broken into smaller pieces and packed in stone jars for shipment. Sometimes it is dissolved in chloroform, from which it crystallizes in about a week. The crystals are freed from the mother liquor by a centrifugal machine, and dried in a closet heated by steam. The mother liquor which is thrown off can be used to dissolve a new portion instead of chloroform.

Having sketched the production of chloral on a large scale, we may now look after the by-products, which play such an important role.

Chloride of manganese is formed in immense quantities, and unfortunately finds but little use in the arts. Schering has collected in two years about 5,000 carboys of this solution, and no small capital is invested in the containing vessels, so that at last it has become necessary to throw it away.

The second by-product is the hydrochloric acid from passing chlorine through the alcohol and from the first distillation. This, of course, is returned to the chlorine generator.

The etherial liquid which collects in the last carboy, under the hy-

hydrochloric acid, is also interesting. According to an analysis by Dr. Kræmer, of Berlin, it is a mixture of chlorides of ethylene and ethylidene, both of which are employed in medicine. The chloride of ethylidene was also introduced by Dr. Liebreich as an anæsthetic. These liquids are separated by fractional distillation in the usual manner in copper retorts. The free hydrochloric acid contained in them must, of course, be neutralized with soda or potash, and the liquids dried over chloride of calcium. Although their boiling points differ by 23° C., it is scarcely possible to absolutely separate large quantities of them.

The next and last by-product is the sulphuric acid used in expelling the hydrochloric acid. This is sold at a low price for use in other manufactories where its impurities do no harm, as, for instance, in making soda water.—*Journ. of Applied Chemistry, August*, 1873.

TOXICOLOGICAL DETECTION OF PHOSPHORUS.

By Prof. G. Dragendorff.

We extract the following from a notice of Dragendorff's "Manual of Toxicology": The detection of phosphorus can be effected by two methods: we either seek to isolate it as such, or at least to exhibit its luminous properties; or, we endeavor to find its products of oxidation other than phosphoric acid (which, of course, is naturally present in the animal body). Mitscherlich's procedure is based upon the isolation of the phosphorus by distillation and the exhibition of its peculiar light. The suspected fluids are diluted, if needful, with water, and the homogeneous mixture introduced into a flask of sufficient size. Sulphuric acid is then added. The flask is closed with a cork, through which passes a tube bent twice at right angles. 2 or 3 centimetres in diameter and 5 or 6 long, and communicating with a Liebig's condenser of glass. Heat is then applied to the flask, and the process of distillation carried on in a darkened room. Luminous vapors appear in the flask as soon as the liquid is in ebullition. These vapors gradually ascend the tube, and become almost permanent at the spot where the first drops of watery vapor condense. Fresenius and Neubauer have recognized these luminous vapors for half an hour with a solution containing 1 milligrm. of phosphorus diluted to 200,000 parts. Husemann and Marmé introduced 1 c.c. of phosphuretted oil into the stomach of a rabbit, and obtained distinct luminous indications from the contents of the stomach, the animal having been killed five hours afterwards. The distillate may contain granules of phosphorus even when none can be recognized in the matters submitted to distillation. The process, however delicate, is not applicable in all cases. Certain products of putrefaction, creasote, sulphuretted hydrogen, alcohol, ether, and oil of turpentine prevent the appearance of the luminous vapors. The phosphorus may always be detected when in quantity sufficient to separate out in granules, but the presence of these foreign bodies may mask mere traces. In such cases the distillate is subjected to a further examination. Scheerer recommends to distil in a current of carbonic acid gas, in order to prevent any of the phosphorns being lost by oxidation. By this method, however, the valuable character of luminosity is sacrificed. It may happen that all, or most of the phosphorus, has been transformed into phosphorous or hypophosphorous acid, in which case little or no luminous vapor can be detected by the above-mentioned method. The vapors of phosphorous and hypophosphorous acids reduce salts of silver, and consequently blacken filter-paper saturated with an argentic solution. This reaction is so sensitive that when it fails we may be sure of the absence of phosphorus. The converse unfortunately does not hold good, since many bodies produce a similar reaction, *e. g.*, formic acid and sulphuretted hydrogen. Hence Scheerer recommends the simultaneous employment of paper soaked in acetate of lead, which is blackened by sulphuretted hydrogen, but not by the acids of phosphorus. Fresenius and Neubauer have shown that ozone may give a brown color to the lead-paper. It is, therefore, better to replace the lead with other test-papers prepared with nitro-prusside of sodium, arsenious acid, and chloride of antimony. The simultaneous coloration of these papers will show the presence of sulphuretted hydrogen, but will prove nothing as to the simultaneous presence or absence of the phosphorous acids. Scheerer proposes to search for phosphorus in the silver paper. It is to be washed with boiling water, the silver separated with hydrochloric acid, and phosphoric acid determined in the filtrate by means of molybdate of ammonia. It is better to dissolve the filter-paper in aqua regia. The only drawback to this process is the difficulty of procuring filter-paper absolutely free from phosphates. Dussard and Blondlot treat the homogeneous mass under examination with pure zinc and sulphuric acid. The gas generated contains phosphides of hydrogen, and burns with a characteristic green flame. The gas before being burnt, is freed from every trace of sulphuretted hydrogen by being passed through tubes filled with pumice steeped in potassa-lye. It should be burnt at a platinum orifice, for the yellow coloration of soda in the glass would otherwise mask the reaction. The hydrogen must not be mixed with arseniuretted or antimoniuretted hydrogen. The presence of alcohol, ether, and other organic matters is fatal to the reaction. The green color is more distinct by daylight than in a darkened room. Blondlot has remarked that the phosphuretted hydrogen disengaged gives a black precipitate, phosphide of silver, in solutions of nitrate of silver. The phosphide, placed in a suitable apparatus with zinc and hydrochloric acid, gives off a gas which burns with a green flame. In this manner he removes the organic matters which interfere with Dussard's procedure. The following is his method: The suspected matters are converted into a homogeneous paste, and introduced into a roomy hydrogen apparatus with zinc and sulphuric acid. The gas is passed through a solution of nitrate of silver. The precipitate is filtered off, when it no longer increases in bulk, washed and introduced into a small apparatus, and treated as above. This process occasions the loss of a part of the phosphorus. Fresenius and Neubauer have proved that merely two-thirds of the phosphorus are thrown down as phosphide of silver. These two chemists combine the two procedures of Mitscherlich-Scheerer and of Dussard-Blondlot. They first employ the method of Mitscherlich, or that of Scheerer, according as there appears to be more or less of the poison present. In some cases not merely distinct luminous vapors are seen, but granules of phosphorus are isolated. As soon as these characteristics cease to appear, nitrate of silver is added to the condensed liquid, and the distillation is continued. The well-washed precipitate is introduced into the hydrogen apparatus. The purity of the zinc and sulphuric acid employed should be determined by a previous experiment. Fresenius and Neubauer have analyzed a liquid (putrid blood and water), containing 1 milligrm. of phosphorus in 200,000. The first 400 c.c. of hydrogen presented the most characteristic reactions. The coloration was more feeble with the 400 next, and very faint but still perceptible with the 400 last. Christoffe and Beilstein recommend the examination of the flame with the spectroscope. The residue of the distillation may contain phosphorous acid formed by the oxidation of the phosphorus. It may be treated with zinc and sulphuric acid. Phosphoric acid is never decomposed in these conditions. The contrary is the case with the hypophosphites, which, being latterly employed in medicine, may be the cause of errors.—*Chem. News* (*Lond.*), *July* 18, 1873.

THE CINCHONA PLANTATIONS IN JAVA.

By John Eliot Howard, F. L. S.

I did not receive till last Friday a pamphlet called 'A Contribution towards the Knowledge of the Cinchona Culture in Java. By K. W. von Gorkom. Translated from Dutch into German by C. Hasskarl." This paper, which may be considered official, helps greatly towards the understanding of the very important question, "From whence arises the superiority of the Dutch Calisaya tree, proceeding from Ledger's seed, over those raised from the same seed in British India?" I do not say that we have quite a definite answer, but that we are on the way to it, and shall soon, as I hope, get to the bottom of the business. I feel some responsibility to accomplish this, as in reply to an official letter of inquiry from her Majesty's Secretary of State for India, in January, 1872,* I ventured to recommend the cultivation of these superior kinds of Calisaya, and specially of No. V Calisaya (Broughton).

There is a contrast *now* pointed out between the plants from British India and those which have been raised in Java. "In 1866—67 there were raised 3000 plants of C. Calisaya, from seed obtained from British India. These have *quite an irregular type*, so that their identity with the remaining Calisaya plants may be called in question. Almost all the Calisaya plants raised since 1868, and thus planted out in the open, since 1869—70 proceed from the trees obtained from Bolivian seed. They show themselves *by an unchangeable type and a high percentage of quinine*, so that from this source in a few years distinguished bark for the manufactories may be expected."

The cultivators in Java, having obtained *the real sort*, have been careful to propagate it by cuttings, not trusting to the variable results of the seed. And what is this typical sort? Of this we shall doubtless be informed from Java. At present I can only say that the appearance of the small portion of the bark which I have seen is that of the *Zamba* (as I have said), and its contents in alkaloid, 7·44 per cent. of sulphate of quinine, against 7·40, my best among many trials of this sort, confirms me in this view.* At the same time there are so many kindred kinds that we must wait distinct specimens of the flowers, fruit and leaves from Java. From British India we shall, I hope, receive similar specimens of *their* variety, which for convenience sake I shall call "*Calisaya red bark.*" The botanical specimens which I have from Ootacamund are all *C. Josephiana.* The one plant remaining from these I raised from Ledger's seed is C. Calisaya of a good type.† The present paper so completely confirms what I have written that I might have saved myself much trouble if I had received it sooner. It seems that on July 1st, last year, there were altogether 1,507,079 cinchona trees in Java (exclusive of C. Pahudiana.) Of these there were 1,090,797 trees of C. Calisaya, including 80,000 C. Hasskarliana. The amount of good Calisaya was, at the very utmost—" 1200 plants planted out in the open in 1865-6, in 1866 about 20,000 plants of like origin (obtained from Mr. Ledger) and in 1869 again more than 5000 plants. The first and last sending of the seeds were through Mr. Schuhkraft, at La Paz, in Bolivia"—so that if my arithmetic is right, there were then 984.597 plants of poor and so-called Calisaya against 26,200 real and good trees. I sincerely hope the proportion may be reversed, and this speedily.

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* See Pharm. Journ., March 9, 1872.

Of these inferior sorts Mr. Von Gorkom says: " The old original varieties of Calisaya show a remarkably varying percentage of alkaloids, and must consequently be considered more as medicinal barks."

But though of little account for the production of quinine, some of these trees contain (according to Mr. Moens) a *large* amount of *conchinin* (quinidine of Pasteur). This fact, which separates them widely from the genuine Calisaya, turns out most fortunate for the success of the plantations. There is no alkaloid (unless it be aricine) so sparingly produced by the Cinchona as this *conchinin* (whilst *cinchonidine* on the other hand is most abundant), and, as it happens to be much sought after, it may *soon* reach a price in the market near to that of quinine.

I refer to the original paper for much interesting information, and also for confirmation of what I have written, especially about the C. Pahudiana, which has been planted out in the wild forest, and (as Mr. Von Gorkom justly observes) " what has been obtained from these forest plantations is clear gain. From the C. Pahudiana planted out in the open ground since 1863-4 we have gathered about 5000 kilogrammes of bark." The maximum price in 1872 sale was 5*s.* 4*d.*, and the minimum price in May, 1873, was 2*s.* The whole may then represent at least £1500 already saved from destruction, and I will further add that this tree, "which has now become historical,"* is not unlikely to *improve much with age*, whilst the reverse is pretty sure to be the case (owing to the cinchotannic acid) with the C. succirubra.—*Pharm. Journ.* (London), July 19, 1873.

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* My 8 per cent. trial was from the bark of a *very large Calisaya tree,* of I know not exactly what type.

† I cannot identify it either with the Zamba or the red variety.

Varieties.

Trimethylamina in Rheumatism.—Dr. A. Gubler reviews the reports of Dr. Dujardin-Beaumetz on the favorable results obtained by him with this alkaloid, which he employed under the name of propylamina, and compares them with his own observations and those of many other French physicians; he comes to the conclusion that there is nothing to justify confidence into trimethylamina in painful articular rheumatism. Among the cases cited, there are many absolutely unfavorable, while in others merely a happy coincidence can be observed; not one furnishes a decisive proof supporting the favorable opinion entertained by some.—*Journ. de Pharm. et de Chim.*, 1873, June, 472-476.

The conclusions arrived at by Dr. Gubler are fully supported by the results obtained by American physicians more than ten years ago. At that time the trimethylamina employed was obtained from herring pickle purified in the form of hydrochlorate by alcohol. Dr. Dujardin-Beaumetz has used, in a number of cases, the alkaloid prepared synthetically. Trymethylamina, or as it is still called by many, propylamina, will probably hereafter remain obsolete as a remedy in rheumatism; whether the true propylamina deserves any better fate, appears, to say the least, very doubtful, according to the observations of Dr Gubler.—Ed. Am. Jour. Pharm.

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* The following is from Mr. Von Gorkom's account of the Pahudiana: "This sort of Cinchona soon raised a violent contest. Miquel defined it as the worthless *C Carabayensis*, and remained of the same opinion. Howard examined it carefully and described it as a new kind, to which he gave the name of C. Pahudiana, in order to do honor to the statesman to whom, without contradiction, the paternity of the Cinchona culture belongs. The value of this C. Pahudiana was so strongly called in question, that the Indian Government, moved by the higher authorities, forbade by a decree of 11th Sept., 1862, its further extension." [It increased notwithstanding from 324,343 in 1862 to 909,155 in 1866.] "But whatever may be said of this now historical plant, it has shown that it can be useful in Pharmacy, and that its product can be sold for a considerable price in Europe. In alkaloidal contents it stands certainly near our other barks."

Inhalations of Bromine in Diphtheria and Croup—By Dr. Schutz.—The fact that diphtheritic membranes are more readily soluble in a solution of bromide of potassium than in lime water, or other substances usually employed in the treatment of diphtheria, induced the writer, some years ago, to adopt inhalations of bromine in the treatment of this disease. His success therewith has been so good that he again, in some recent numbers of the *Wiener Med. Wochenschrift*, urgently commends it to the notice of the profession. He advises the use of a solution of pure bromine and bromide of potassium, each three-tenths of a gramme, to water 150 grammes. A sponge is soaked in this solution, placed in a funnel of stiff paper and held over the nose and mouth for inhalation, just as is done with ether or chloroform, the inhalation being continued for five or ten minutes, and repeated every half hour or hour. The odor of bromine, as diluted, is very well borne even by infants. The preparation being highly volatile and decomposed by light, must be guarded accordingly.—*Kansas City Med. Jour., Aug.*, 1872, from *Allg. Med. Central-Zeitung*.

AMERICAN PHARMACEUTICAL ASSOCIATION.

NOTICE OF ANNUAL MEETING.

The 21st Annual Meeting of the American Pharmaceutical Assoc. will convene at Virginia Hall, in the City of Richmond, Va., on the 16th day of September (third Tuesday), 1873, at 3 o'clock, P. M. As this will be the first meeting held in the Southern States, it is earnestly desired that the different sections of our country may be fully represented, and thereby give evidence of its national character, and of a continued and growing interest in the Association. The city of Richmond is easy of access from all parts of the Union, and presents, with its vicinity, much of historic interest An excursion to Petersburg, Fredericksburg, and Mount Vernon, is in contemplation. Details relating to the excursion, and to the hotel accommodations for the visiting members, have been announced by the Secretary. Pharmacists and others eligible for membership are invited to forward or present their names for election, and thereby aid in extending the usefulness of this Association. The necessary blanks can be obtained from the Permanent Secretary, Prof. John M. Maisch, 145 North Tenth street, Philadelphia, Pa.

The exhibition of objects relating to Pharmacy and the collateral sciences, has become a prominent and interesting feature of our annual meetings, and we hereby extend a cordial invitation to all who may have apparatus and specimens of interest, either of their own manufacture or of others, to send them, *pre-paid*, addressed to the American Pharmaceutical Association, at Virginia Hall, Richmond, Va.

ALBERT E. EBERT, *President*.

Chicago, July, 1873.

Pharmaceutical Colleges and Associations.

The Rhode Island State Board of Pharmacy, to serve three years from July 1, 1873, has been appointed as follows: Albert L. Calder, William B. Blanding, Ossian Sumner and Norman N. Mason, of Providence; Bela P. Clapp, of Pawtucket; Albert J. Congdon, of East Greenwich, and James H.

Taylor, of Newport. At a meeting of the Board for organization, Mr. Albert L. Calder was elected President, and Norman N. Mason, Secretary and Registrar for the full term of their appointment.

THE NEW YORK COLLEGE OF PHARMACY, we are informed, will have to fill a vacancy in the Board of Pharmacy, occasioned by the resignation of Francis Weismann, M. D.

THE NEW JERSEY PHARMACEUTICAL ASSOCIATION held its fourth summer meeting in the parlors of the Mansion House, at Long Branch, on Wednesday, August 13. Only about thirty members were present. Owing to breaks in railroads, caused by the severe storm, many were unable to attend. After reading the minutes of the previous meeting, the Legislative Committee presented a very full and satisfactory report, which was received and proper measures adopted to act upon the suggestions contained therein. The names of one member from each county were added to the Committee, and it is hoped that their efforts to secure the passage of the "Pharmacy bill" in the next Legislature will be successful.

The Standing Committee were instructed to prepare, and present to the next Legislature, an "Act of Incorporation," which shall include the privilege of establishing a College of Pharmacy in the State whenever the Association may deem it expedient. A resolution was unanimously adopted condemning the practice which too generally prevails of making bar-rooms of drug stores, and recommending druggists throughout the State not to allow any liquors to be drank in their stores under any pretext whatever.

A very interesting article, entitled "Wanted, a Competent Drug Clerk," selected from the *Druggist's Circular*, was read, and received the hearty approval of the Association.

An answer to a "query," concerning a "Formulary for Unofficinals," was then read, in which the writer strongly recommended that, inasmuch as "uniformity" was the great desideratum, the Association should not propound a formulary of its own, but adopt that which probably will soon be published by the American Association.

A Committee was appointed to make arrangements for the next annual meeting, and to procure specimens of drugs, new preparations, apparatus, etc., for exhibition. The Association then adjourned.

The next meeting will be held at Jersey City on the second Wednesday in February, 1874.

THE NATIONAL COLLEGE OF PHARMACY, at Washington, D. C., held its first annual meeting last month. Mr. W. S. Thompson occupied the chair and Mr. J. C. Fill Secretary.

Prof. Oldberg submitted an amendment to the constitution, changing the time for the annual meeting to the second Monday in April, instead of the first Monday in August. Also, an amendment to the by-laws, providing for rules of order. The amendments were adopted.

The President read his annual report.

After congratulating the College upon the success which has attended the first year of its existence, he gives a history of the organization and the progress made up to this time. The College has a full supply of apparatus for illustrating the lectures on chemistry and pharmacy, and splendid specimens of materia medica. He recommends the change of the annual meeting in order to facilitate the course of lectures given annually by the College, and the raising of an additional sum of money to liquidate some debts. The amount subscribed for inaugurating the College was $1,565, of which there was collected $262·50; amount received from students, $240; new members, $24; total amount disbursed, $1,517. The estimated expense of the College for the coming year is $1,000. There are fifty-one members of the College. He states that the lectures are the legitimate object of the Association, and urges increased interest in procuring attendance. He alluded to the bill introduced in the last Legislative Assembly regulating the practice of pharmacy, which had not passed for want of time, but expressed the hope that it would be passed at the next session.

The following officers were elected: President, W. S. Thompson; First Vice-President, F. S. Gaither; Second Vice-President, John R. Major; Recording Secretary, John C. Fill; Corresponding Secretary, R. B. Ferguson; Treasurer. J. P. Milburn; Curator, Z. W. Cromwell; for additional trustees, J. D. O'Donnell, W. B. Entwisle, W. G. Duckett, George M. Howard and Rudolph Oldberg.

The code of ethics was amended, and the following delegates were appointed to attend the meeting of the American Pharmaceutical Association. to be held at Richmond: Prof. Oscar Oldberg, J. R. Major, F. S. Gaither, W. B. Entwisle and W. S. Thompson.

On motion, the President of the College was authorized to act as President of the Board of Trustees *ex officio*.

The Secretary was directed to send copies of the report of the President to the *American Journal of Pharmacy* and *Druggist's Circular* for publication.

The meeting then adjourned.

The Washington Pharmaceutical Association, we have been informed, is the title of an organization, principally composed of pharmaceutical assistants. Its object is the mutual improvement of its members and the interchange of knowledge pertaining to pharmacy. The Association will probably be represented at the Richmond meeting.

St. Louis College of Pharmacy.—We observe from the annual announcement that the qualifications for graduation are now the same as at the other Colleges. The faculty, in consequence of some resignations, has been constituted as follows: Theodore Fay, M. D., Professor of Chemistry; Otto A. Wall, M. D., Professor of Materia Medica, and Hubert Primm, Professor of Pharmacy.

California College of Pharmacy.—The inauguration exercises of the California College of Pharmacy took place on the evening of July 8th, 1873. The attendance was large—a gratifying proof that the friends of pharmaceutical progress are not few in this locality.

The opening address was delivered by Prof. D. C. Gilman, President of the University of California. Addresses were also delivered by Wm. T. Wenzell, President of the College of Pharmacy; Dr. R. Beverly Cole, J. G. Steele and Prof. Searby. The educational work of the College actually commenced upon Friday evening, July 11th, with a class of twenty-seven students. So large an attendance shows conclusively that the young pharmacists of California are fully alive to the importance of special and thorough education in their profession.

This College has affiliated with the University of California in conformity with the following sections of the "Organic Act" of the University of California:

"SECTION 8. The Board of Regents may affiliate with the University, and make an integral part of the same, and incorporate therewith any incorporated college of medicine or of law, or other special course of instruction now existing or which may hereafter be created, upon such terms as to the respective corporations may be deemed expedient; and such college or colleges thus affiliated shall retain the control of their own property, with their own Board of Trustees, and their own Faculties and Presidents of the same, respectively, and the students of those colleges, recommended by the respective Faculties thereof, shall receive from the University the degrees of those Colleges, *provided*, however, that the President of the University shall be, *ex officio*, a member of the Faculty of each and every college of the University, and President of such Faculty."

"SEC. 18. The immediate government and discipline of the several colleges shall be entrusted to their separate Faculties and the resident professors of the same, each of which shall have its own organization, regulate the affairs of its own college, etc., etc. * * * * * * * *

The agreement which has been entered into is as follows:

"In accordance with the Organic Act of the University of California, the California College of Pharmacy is hereby affiliated with the University, upon the following basis.

"The College will maintain its own Board of Trustees, and will continue to hold its own property as if this affiliation had not been agreed upon.

"The College will also appoint its own professors and establish its own course of instruction, subject to the general approbation of the Regents of the University.

"The University will confer the degree of Graduate in Pharmacy upon candidates recommended by the Board of Examiners of the College, and approved by a committee to be designated by the Regents.

"This agreement may be cancelled by mutual consent, at any time, or by the withdrawal of either party to it, after twelve months' notice to the other party."

The terms of affiliation, it appears from the above, are very liberal, and must be advantageous to the department of pharmacy, being thus placed under the patronage of the State, and retaining, at the same time, all the essential characteristics of the Colleges of Pharmacy of the older States, and particularly the most important of all, namely, the management of its affairs by professional pharmacists.

The four chairs in the College are filled as follows: Willard B. Rising, Chemistry; J. Winchell Forbes, Pharmacy; Wm. M. Searby, Materia Medica, and Herm. M. Behr, M.D., Botany.

The two-class system has been planned for three chairs somewhat similar to the sketch published on page 523 of our last volumes; in the materia medica course no *division* is announced in the prospectus, a virtual admission, we take it, that a mere division of the courses as laid out by the older colleges is not equivalent to the adoption of a really progressive system of study.

We trust that the first college of pharmacy on the Pacific coast will meet with that good success to which the energy of its officers and members entitles it.

PHARMACEUTICAL SOCIETY OF PARIS.—At the meeting held July 2d, M. Stan. Martin presiding, a letter was read from the President of the *Société de prévoyance* of the department of the Seine, calling attention to the advantages which would result from the practical examination of pharmaceutical students; several provincial associations have instituted such examinations, and the Paris Society is requested to establish them also for the department of the Seine. The subject was referred to a committee, consisting of MM. Boudet, Roucher, Mayet, Blondeau and Marais, for consideration and report.

M. Edme Bourgoin exhibited the results of his researches on the influence of heat upon succinate of silver; if this salt is mixed with about three times its weight of fine sand, and gradually heated in a retort to 180° C., vapors are disengaged continually above 100° C., condensing partly into an oily liquid, partly into crystals; the liquid is a solution of maleic acid slightly tinged by traces of empyreumatic products; the first portion of the sublimate consists likewise of maleic acid, the last portion of succinic acid (*Journ. de Pharm. et de Chim.*, 1873, Aug., 83.)

M. Martin exhibited China and Tartary nutgalls, which M. H. Soubeiran stated are produced by *Aphis sinensis* upon *Dystilium racemosum;* within the galls several generations of female insects are produced, afterwards winged males and females copulating in the air, the females determining the growth of the galls by the deposition of their eggs.

M. Marais exhibited infusions of clove pink, peony and red poppy, made both with distilled and with common water; the latter are completely altered, while the former retain their agreeable aroma and color. M. Boudet remarked that M. Ward has demonstrated this long since, for tea, which yields a more agreeable infusion with much less tea, if distilled water is used. M. Méhu said that in preparing extracts distilled water only should be used.

Mr. Méhu presented specimens of ammonio-ferric citrate and tartrate, which he obtained of definite composition from the ferrous salt.*

M. Roucher expressed the belief that the ceresin presented lately by M. Grassi contains vegetable wax; he showed some paraffin obtained from ozokerite, which is a very different product; it exists in the mineral in the proportion of 55 per cent.

Editorial Department.

THE EASTERN EXCURSION TRIP TO RICHMOND to the meeting of the American Pharmaceutical Association has been altered to meet the wishes of many members desiring to spend together Sunday, Sept. 14. The excursion via York

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* We shall refer again to M. Méhu's paper in our next number.—ED. AM. JOUR. PHARM.

River has been abandoned, and the following is substituted in its place: The party will leave Baltimore on Saturday, Sept. 13th, at 4 o'clock P.M., by Bay line steamers, arriving at Fort Monroe and Vue de l'Eau early Sunday morning. On Monday morning they will proceed to Richmond by James River steamers, arriving in that city about 5 P.M. After the final adjournment, it is proposed to journey to Washington via Richmond, Fredericksburg and Potomac Railroad, and to visit Mount Vernon on the way there.

Excursion tickets will be sold on the boat on Saturday and Monday (Sept. 15th), at $11. The tickets will be good by the way stated, from Baltimore to Richmond and back to Washington, D. C. Round trip tickets over the route as proposed above are issued from and back to New York at excursion rates ($22.30). The same excursion tickets (No. 203 of the Pennsylvania Railroad) will also be sold in Boston to accommodate the members from New England.

In all cases where baggage can be checked to Baltimore only, the excursionists with their baggage will be transferred free of charge from the connecting trains to the boat. Baggage checks must be handed, on the train, to the Bay line agent, or to the agent of the Union Transfer Company.

Special accommodations will be provided on the boat to the excursionists; all intending to participate should, therefore, report at once the number of berths required to Mr. J. F. Hancock, Baltimore.

AMERICAN MEDICATED PILLS AT THE VIENNA EXPOSITION.—The "Zeitschr. des allgem. oesterr. Apoth. Vereines" contains in its issue of July 10 a paper on this subject, from which we extract the following:

Among the articles on exhibition from the United States, belonging to Group III (chemical products), our attention is attracted by a collection of white and red globules, put up in elegant bottles of different shapes and dimensions. We would suppose them to be some dainties if they were not embraced in Group III, and on further examination we find here almost all medicinal substances of the United States in the form of pills. We requested the representatives of these firms for some details about the sugar-coated pills, as they are called, and learned that they are a necessity for the practical American, and that he supposes not to be able to exist without them. In case he is taken sick, he asks the physician, or a friend in whom he has confidence, what can be done against his ailment, and receives the advice to take some kind or other of pills. The patient buys them, and in case he gets well he will never again be without these pills; he will always carry them with him, and if unwell take a few of them.

We must, however, not forget that this is possible only in a country like America where the largest portion of the physicians are charlatans, and where pharmacy may be practiced according to the notions of any individual.

But these pills must be looked upon as a decided progress in pharmacy, and if they would come into use with us, and be ordered by physicians, we believe that many a patient would overcome his disgust at the taking of disagreeable and nauseous medicines, and calmly swallow his pills in case of sickness. Consider, for instance, how disagreeable to take are the preparations of bromine, valerian, assafœtida, &c., and what difficulties the physician has to overcome to exhibit such medicines in as agreeable a form as possible, particularly to children. All this is avoided by these pills; but we favor them only when prescribed by the physician, for it cannot be denied that serious harm is done by the free sale of these pills, and several intentional or accidental cases of poisoning have occurred in America through the use of these pills. To convince you of this, I here append formulas for several of these pills. [Follow formulas for Plummer's, Cook's, emmenagogue and compound calomel pills]. Such pills are prepared by most of the larger laboratories, and are here exhibited in two forms by two firms.

It is desirable to see in what light we are seen by others; but when a deliberate opinion is expressed upon such crude and vague notions as shown by Mr. R. Hildwein. the author of the above article, such opinions are deprived of nearly all the value they may otherwise possess, and cause merely a smile of compassion for the fertile imagination of their holder, and for the unreliable sources of such information, which we are sure will not be owned in the manner expressed here by the representatives of the two firms mentioned (W. R. Warner & Co. and McKesson & Robbins). The fling at the physicians of the United States is, to say the least, so ungenerous, that we wonder at its acceptance into the Austrian pharmaceutical journal.

To Correspondents.—As a general rule, we prefer to answer inquiries by letter, and not to notice them in the "Journal," unless the subject is deemed of sufficient interest to be laid before our readers. Reluctantly, only, we depart from this rule in such cases where the name and address has not been furnished.

One correspondent has received from an eminent physician of this city prescriptions calling for *Mist. Ammon. Muriat. comp.* and for *Tinct tonica*, and wants to obtain from us formulas for the two preparations. We know that some physicians have prescribed the compound tincture of cinchona and quassia, a formula for which will be found in Parrish's Pharmacy,* under the name of tonic tincture; but not knowing who the eminent physician is, we cannot ascertain from him whether this or some other tonic tincture was intended by him, and whether the formula for his compound mixture of sal ammoniac has ever been published.

Another correspondent desires us to publish a formula for elixir of calisaya, iron and bismuth. We refer him to the "American Journal of Pharmacy" for 1868, page 237, and to p. 310 of the volume for 1871.

A third correspondent describes his manipulations in preparing ointment of oxide of zinc, which are precisely like those published on page 68 of the present volume, except that melted lard is used where Mr Kalish uses sweet oil of almonds.

We are frequently in receipt of newspapers, sent for the purpose of calling our attention to some article or item of news contained in it. Being truly thankful for such courtesy, we would respectfully ask our correspondents not to omit the marking of the article specially intended for our eyes, as the time at our disposal does not permit us to read the sometimes voluminous papers sent, in order to discover what it may contain of special interest to us or the readers of the "Journal."

Incompatibles.—A great deal has been written upon this subject, and more extensive still is the experience of pharmacists, of the apparent disregard, on the part of physicians, of the laws of incompatibility. A correspondent thinks that this is due to the fact that few medical students pay due attention to the lecturer on chemistry. This may be the case, and, in our opinion, it would do no harm for medical students to go through a regular course of practical chemistry, as we conceive it to be conducive of superior qualifications, if the large majority of pharmaceutical students were to devote considerable of their time to systematic experiments in practical and analytical chemistry. Experience is by far the best teacher of manipulations and of scientific facts. Where this experience is wanting, tables of incompatibilities are often resorted to, to supply this deficient knowledge. These tables are often far too cumbersome, and, instead of enumerating what certain articles should *not* be combined with, the facts are often arrived at much better by stating the compounds with which they may be mixed without causing precipitates or decomposition Thus, of nitrate of silver it may be said, that it can only be combined with nitrates and pure soluble chlorates; all the other officinal articles, whether organic or inorganic, will either cause a reduction or produce insoluble or sparingly soluble silver compounds.

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*See, also, American Journal of Pharmacy, 1856, p. 18.

It must, however, be remembered that certain combinations which are truly incompatible in a chemical sense, are, notwithstanding, largely employed in medicine, and that many compounds, insoluble in simple solvents, possess considerable medicinal activity. Acetate of lead is prescribed together with tannin or opium preparations, quinia with tannin, opium with astringents, sulphate of zinc with acetate of lead, &c., and many of such combinations, used internally as well as externally, have been sanctioned by high authorities and long usage. It is, therefore, not always possible for the pharmacist to determine whether the intention of a physician can be arrived at by following literally the directions of the prescription, and in all cases of novel combinations which are followed by decomposition, it is well to call the attention of the physician thereto; such care and attentiveness will always be appreciated by well-meaning practitioners.

We remember a physician who wanted a clear liquid when prescribing acetate of lead and sulphate of zinc. On explaining to him that either the sulphate of lead formed would have to be filtered out, or the acetate of zinc substituted for the sulphate, he at once directed the latter to be done

Nitrate of siver dissolved in distilled water is often directed by physicians to be put up in dark colored vials. We have explained to several that the solution is not blackened by the influence of the light, but mainly in consequence of the contact with inorganic matter, such as dust, hair pencil, cork, volatile oil (if rose water is directed), and the like. Many of these practitioners subsequently prescribed silver solution in ordinary glass stoppered vials.

But it is useless to enumerate instances of this kind. We merely desire to draw attention to one of the prescriptions sent us, which appears to be written with such a glaring disregard of chemical laws, that the physician should have been consulted before it was dispensed. The prescription alluded to is as follows:

R. Potass. Iod., ... ʒi,
Argenti Nitr., . . . ℈i,
Aquæ, ... ℥iv. Mix.

Pharmaceutical Education in Indiana.—We have received a circular of Fort Wayne College, in which hereafter instruction in pharmacy will be given by Mr. H. V. Sweringen. This college is under the patronage of the North and North-West Indiana Conferences of the Methodist Episcopal Church, and is intended as an educational institution for both sexes. The circular does not state to what extent and in what manner pharmacy is to be taught; but from private information we learn that the course is intended as a preparatory one to those who purpose afterwards finishing their pharmaceutical education at a college of pharmacy, and as an aid and guide in their subsequent private studies to those who are not so fortunately situated as to be able to attend the lectures at a college of pharmacy. Similar classes have been formed in Rhode Island, Richmond, Va., and other places, and have met with success. We look with pleasure upon such courses, as a sure indication that the necessity of a more thorough education of pharmacists is being appreciated everywhere, and that the progress made in it of late is destined to become more apparent year after year.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Chemistry: General, Medical and Pharmaceutical, including the Chemistry of the U. S. Pharmacopœia. A Manual of the General Principles of the Science, and their Applications to Medicine and Pharmacy. By John Attfield, Ph.D., F.C.S., &c. Fifth edition, revised from the fourth (English) edition of the work by the author. Philadelphia: Henry C. Lea. 1873. 12mo. pp. 606.

We are truly gratified at the favor with which the first American edition of this work, published two years ago, has been received by the American student. An extensive experience with it as a text-book in the practical laboratory of the Philadelphia College of Pharmacy has even more fully convinced us of its utility and its value as a guide in the practical instruction in chemistry. The comprehensive character of the work has been faithfully adhered to in this new edition, in which the chemistry and nomenclature of the latest U. S. Pharmacopœia have received their full share of attention, increasing the size of the volume, with the new matter added to it, over fifty pages. We bespeak for this one the same favor that has been extended to the former edition, and, notwithstanding our views differ in some particulars from those of Professor Attfield, we expect to use the volume in our practical instructions with the same benefits to the students that has been afforded by the use of its precursor.

A Botanical Index to all the Medicinal Plants, Barks, Roots, Seeds and Flowers usually kept by Druggists, arranged in Alphabetical Order, with their Officinal and Common Names. By Allan Pollock, druggist. New edition, revised and enlarged. New York: Allan Pollock, 1873. 8vo, pp. 137.

This useful little work consists of two parts. The first part, occupying a little less than one-third, consists of an alphabetical list of the botanical names of officinal plants, with their common and local names in the adjoining column. The second part is arranged with the English names in alphabetical order, having opposite to them the botanical names. In all cases where two or more synonyms are used for one plant, or where two or more plants are designated by one English name, the one which is recognized by the Pharmacopœia, or which is most widely recognized, is indicated by italics.

We have carefully examined both lists, and believe them to be entirely correct and reliable; we therefore recommend the book as an extremely useful one, to pharmacists and druggists generally. Although there may be but rare occasions for it, the typical arrangement is such that other names can be added in writing. Only in one instance have we observed an omission: Erigeron canadense, for which the author names, on page 18, not less than nine English names, should have three additional ones, which are used in Northern Ohio and in Michigan, namely, *horsetail*, *cowstail*, and *fireweed* (see Amer. Journ. of Pharmacy, 1870, p. 121).

A Cyclopædia of Quantitative Chemical Analysis. By Frank H. Storer, A.M., Professor of General and Analytical Chemistry in the Massachusetts Institute of Technology. Boston: John Allyn, publisher, 1873. Part II. 8vo. Price, $1.65.

The work is published in parts, each consisting of 112 pages, closely printed in double columns. We have before us Part II, containing the articles *carbonate of sodium* to *cyanide of silver*, and embracing such important articles like chlorine and the chlorides, cinchona, chromium, copper, &c. Each article is systematically treated according to the uses to which it is put in quantitative analysis, and the various methods proposed are fully described, together with all the precautions requisite for the successful performance of the process. Its unique arrangement renders it very convenient for use, and, as far as can be judged from the part before us, the professional analyst, as well as the laboratory student, will hardly ever refer to its pages without finding the results of modern chemical investigations that are likely to prove useful for analytical purposes.

The Medical Register and Directory of the United States. By Jos. M. Toner, M.D., and S. W. Butler, M.D. Philadelphia: S. W. Butler, 1873. 8vo.

The advance sheets received by us indicate that the object in publishing this work is to present a correct record of the names, address and educational status of the physicians; also lists of the medical societies, colleges, hospitals and other medical institutions; abstracts of the medical laws of each State, and brief notices of the mineral springs and other health resorts of the United States. The work will doubtless be a very interesting one, and physicians should not fail to give to the editors all the necessary information.

Geo. P. Rowell & Co.'s American Newspaper Directory, containing accurate Lists of all the Newspapers and Periodicals in the United States and Territories, and the Dominion of Canada and British Colonies of North America. New York: Geo. P. Rowell & Co., publishers, 1873. 8vo, pp. 608.

The directory is preceded by a very interesting sketch of the growth of journalism in the United States, from which we take a few figures, which we think will be of interest to our readers. The number of newspapers and periodicals published in the United States in 1870 was 5871; in all other parts of the world it has been estimated at 7642 in the same year. The yearly issue of all periodicals amounted in 1870 in the United States to 1,508,548,250 copies, averaging nearly forty copies to every inhabitant, young and old. There are seven papers which have lived over one hundred years, and forty have reached the mature age of fifty years and more. In 1871 the post-office deparment of the United States delivered 32,610,553 newspapers; yet this department performs but a small part of the service of newspaper delivery.

Braithwaite's Retrospect of Practical Medicine and Surgery. Part LXVII. July. Uniform American edition. New York: W. A. Townsend, publisher, 1873. 8vo, pp. 295. Price, $1.50 a part, or $2.50 a year.

The Half-Yearly Abstract of the Medical Sciences; being a Digest of British and Continental Medicine, and of the Progress of Medicine and the Collateral Sciences. Edited by Wm. D. Stone, M.D., F.R.C.S. Vol. LVII. July, 1873. Philadelphia: Henry C. Lea. 8vo, pp. 295. Price, single volumes $1.50, or $2 50 per annum.

Half-Yearly Compendium of Medical Science. Part XII. July, 1873. Philadelphia: S. W. Butler, M.D. 8vo, pp. 280. Price, single numbers $2.00, or $3 per annum.

The above three half-yearly periodicals contain pretty complete abstracts of most of the important papers bearing on medicine and the collateral sciences.

Unofficinal Formulæ Published by the Maryland College of Pharmacy for the Use of its Membership and Physicians. With the Code of Ethics, List of Members and Faculty of College. Second edition. Collected and revised by a Committee Baltimore. 1873. 8vo, pp. 43.

Report of the State Board of Pharmacy (of Rhode Island) made to the General Assembly. 1873. Providence. 8vo, 8 pages.

Report on the New or Fifth Decennial Revision of the United States Pharmacopœia to the Medical Society of the State of New York. By E. R. Squibb, M.D. Reprinted from the New York Medical Journal, April, 1873. New York: D. Appleton & Co. 8vo 25 pages.

Proceedings of the Third Annual Meeting of the Mississippi State Pharmaceutical Association, held at Vicksburg April 2d.

On Strictures of the Urethra. Results of Operation with the Dilating Urethrotome, with Cases. By F. N. Otis, M D., Clinical Professor, &c. Reprinted from the N. Y. Medical Journal, March, 1873. New York: D. Appleton & Co. 8vo, 20 pages.

Ergot in the Treatment of Nervous Diseases. By D. H. Kitchen, M.D., &c. From the American Journal of Insanity, July, 1873. 8vo, 16 pages.

Thirteenth Annual Report of the Managers of the State Lunatic Asylum, Utica, N. Y., for the Year 1872. Transmitted to the Legislature March 20, 1873. Albany, 1873. 8vo, 96 pages.

Fifth Annual Report of the Pennsylvania Society for the Prevention of Cruelty to Animals. Philadelphia, 1873. 8vo, 32 pages.

Geological Survey of Pennsylvania. Report to Governor Hartranft. By P. Lesley. 8vo, 12 pages.

Cincinnati Industrial Exposition of Manufactures, Products and the Arts. Rules and Premium List of the Fourth Exposition, 1873. Cincinnati, 1873. 8vo, 52 pages.

The reception of the above pamphlets is hereby acknowledged.

OBITUARY.

Elias Durand, Pharmacist and Botanist, died August 14, in the 80th year of his age. Mr. Durand was born at Mayenne, France, on the 25th of January, 1794. In 1808 he commenced the study of pharmacy, and in 1812 attended lectures in Paris. He became an aid in the Pharmaceutical Department of the army in 1813, and served with the Fifth Corps at the battles of Lützen Bautzen, Hanau, Katzbach and Leipsic. Upon the downfall of Napoleon, Mr. Durand left France, and arrived at New York on the 1st of July, 1816. After a few months he removed to Philadelphia, where he took charge of a chemical laboratory at Broad and Race streets.

In preparing mercurial salts his health was injured, and he then removed to Baltimore, where he obtained the position of chief clerk in a drug store. In 1825 he returned to Philadelphia and opened a drug store at the southwest corner of Sixth and Chestnut streets. While he kept the store it was the resort of the leading physicians and chemists of the city. Mr. Durand contributed a number of papers to the earlier volumes of the *American Journal of Pharmacy* and also devoted his attention to the study of botany. He was well acquainted with the flora of North America, and gathered an herbarium of about ten thousand species of plants, which he presented to the Museum of the Jardin des Plantes of Paris in 1868.

He wrote memoirs of Professor Nuttall the botanist, Dr. Kane, the arctic explorer, and André Michaux, the botanical explorer, who bequeathed a large sum of money for the purpose of establishing the park of American forest trees, now well known as the Michaux Grove, in Fairmount Park, Philadelphia. He also wrote descriptions of the plants collected in California by Lieutenant R. S. Williamson, in California and Nevada by Mr. Pratten, and in the arctic regions by Dr. Kane, and contributed to the Linnean Society of Bordeaux, France, an exhaustive paper on the vines and wines of North America. He was a member and one of the curators of the American Philosophical Society, a member of the Academy of Natural Sciences, and an honorary member of the Philadelphia College of Pharmacy, the Société de Pharmacie de Paris, the American Pharmaceutical Association, the Société d'Acclimatation de Paris, Société Linneen de Bordeaux, the Buffalo Society of Natural Sciences, the Linnean Society of Lancaster, and other foreign scientific societies. He was also a member of the French Benevolent Society of this city, and was always active in promoting the welfare of his compatriots and in serving the cause of science.

Bradford Ritter died on the 11th of August, while bathing near the Old York Station, in Montgomery county, Pa. He was born November 20th, 1828. In 1852 he graduated at the Philadelphia College of Pharmacy, and commenced the apothecary business at the northeast corner of Thirteenth and Walnut streets, and afterwards a wholesale drug store at the corner of Front and Market streets. At the time of his death he was connected with Powers and Weightman's chemical works. The *American Journal of Pharmacy* for 1855, page 500, contains from his pen a short paper on Cream Syrups.

TREASURY DEPARTMENT,
Office of Commissioner of Internal Revenue,
Washington, *September 9th*, 1873.

Sir: I have received your letter of the 28th ult. enclosing samples of labels "used upon medicinal preparations and compositions largely manufactured and sold by all druggists and apothecaries," and which you state have hitherto been considered by you as not liable to stamp duty under Schedule C. These labels you have separated, characterizing them as "officinal" and "non-officinal," the first being "all published in the U. S. Dispensatory;" the second, "prepared or compounded according to the full and proper formula published in the different books or journals of pharmacy in general use among physicians and apothecaries."

You state in your letter that there seems to be considerable difficulty in determining which of these regular medicines are liable to stamp tax and which not,—that this matter is more or less perplexing to the trade, as well as to the revenue officers themselves, and that therefore you ask for a decision from this office with regard to the liability or non-liability of the medicinal preparations covered by these different labels, and which may apply, in general, to all medicinal preparations with similar labels attached.

In reply, I have to say that the opinion has been very generally entertained heretofore by manufacturers, compounders and vendors of medicines and medicinal articles. that only such medicines and medicinal preparations and compositions as were patent or proprietary, or made or prepared by some private formula, or occult secret or art, were liable to stamp tax; and that all medicines, &c., compounded according to the United States or other national Pharmacopœia, or where the full and proper formula is published in any standard medical authority, are exempt from such tax; and many revenue officers have, without a careful examination of the precise terms of the law, too generally acquiesced in the same opinion.

But the law, in fact, gives only a conditional exemption to any medicine or class of medicines. The class of medicines exempted and the conditions of such exemption are to be found in the 13th section of the Act of July 13th, 1866. Having carefully described what classes of medicines and under what conditions said medicines, &c., are exempt, it is declared peremptorily that "nothing in this section (viz., in section 13 of the Act of July 13th, 1866, and this is the only section in the law that authorizes any exemption) shall be construed to exempt from stamp tax any medicinal articles, whether simple or compounded by any rule, authority, or formula, published or unpublished, which are put up in a *style or manner similar* to that of patent or proprietary medicines in general, or advertised in newspapers or by public handbills, for popular sale and use, as having any special proprietary claim to merit, or to any peculiar advantage in mode of preparation, quality, use, or effect, whether such claim be real or pretended."

It is held, therefore, by this office, that all medicines and medicinal preparations put up in a style or manner *similar* to that of patent or proprietary medicines in general are liable to stamp tax. The style or manner of putting up need not be exactly like the style adopted in putting up patent or proprietary articles. There need be only a similarity of style—a likeness in the general points.

What, then, is the general style or manner adopted by the makers and venders of patent or proprietary medicines? This is a matter required to be known, in order to determine whether, in a particular or given case, the style or manner of putting up a medicine, not claimed to be patent or proprietary, is "similar;" and whether, on account of such style or manner, it ought to be stamped.

I reply that it is not alone or mainly in the shape or kind of bottle or enclosure containing the article, though liquid medicines are frequently put into peculiar shaped bottles, having the name of the proprietor or patentee blown into the glass, but the leading characteristic of this style is (1) that such medicines are almost always put up in *retail packages*, packages which are sold *with their contents* directly to the consumer; and (2) each package is accompanied with a label, a handbill, or a wrapper containing an enumeration of the diseases or affections for which the medicine is a specific or remedy; containing also directions as to when and how it is to be taken, what constitutes a proper dose, either for an adult or a child, how frequently such doses are to be taken, &c., and generally such directions with regard to the mode of administering the medicine as physicians give when called to prescribe for a patient. These are the distinguishing characteristics in the mode or style adopted in putting up patent and proprietary medicines. It is a style adapted to popular sale and use—to enable the sick to supply themselves with the most popular remedies, and to use the same without the aid or assistance or even of the advice, oftentimes, of a physician or medical practitioner.

Medicines and medicinal preparations, whether "officinal" or "non-officinal," by whatever rule, or authority, or formula compounded, put up in such a style *in retail packages*, and accompanied with a label, a circular or a wrapper, giving the disease, diseases or affections for which such medicines have been and are to be used, and also specific directions as to the dose to be taken, or how the medicine is to be used are, in the opinion of this office, liable to stamp tax under Schedule C.

Again, the same class of medicine becomes liable to the stamp tax, if the maker or compounder, or the person offering them for sale, advertises them in newspapers or by public handbills as having any special proprietary claim to merit. Such proprietary claim may be implied by the use of the possessive case in describing the article, as, for instance, A's pills, or B's tincture, or C's powders, etc., implying special merit because such pills, tinctures, powders, etc., were made or compounded by A, B, or C, as the case may be. Or, again, such medicines become liable when the maker, compounder or vender advertises them, as above, as having any peculiar advantage in mode of preparation, quality, use, or effect, whether such claim be real or pretended.

In fine, medicines and medicinal preparations, to be exempt from the stamp tax, must *not be patent or proprietary*. They must *not be put up in a style* or manner *similar* to that of patent or proprietary medicines. They must *not be advertised* as having any *special proprietary claim to merit, etc.* They must not be sold or offered for sale, or advertised under any *other name, form or guise* than that denominated and laid down in the *authorised* published medical works or journals.

Whoever departs from these plain and simple rules in making, preparing, recommending to the public, and vending, or offering, or exposing his medicines, etc., for sale, has no claim under the law to exemption from the stamp tax.

I return, as per your request, the sample labels you sent with your letter, and have only to remark that, in my opinion, medicines put up in retail packages with such labels affixed, *are put up in a style similar to patent or proprietary* medicines, and are not entitled to the exemption from stamp tax provided in the 13th section of the Act of July 13th, 1866. If there are any exceptions, I think you will be able without difficulty to determine them with the aid of this letter.

Yours, respectfully,

J. W. DOUGLASS,
Commissioner.

ALEX. P. TUTTON, Esq., *Supervisor*,
Phila., Pa.

THE

AMERICAN JOURNAL OF PHARMACY.

OCTOBER, 1873.

THE TWENTY-FIRST ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

This meeting commenced on the afternoon of Tuesday, September 16th, in the Virginia Opera House, located on Ninth street, opposite the Capitol Grounds at Richmond, and closed, with the fifth session, shortly after noon on Friday, September 19th. The hall, spacious without being too large, was well adapted for the purposes of the meeting. The exhibition was held in the supper-room, located in the high basement beneath the hall wherein the meeting was held, and was much more extensive than had been at first anticipated.

First Session—Tuesday Afternoon.

Shortly after three o'clock the meeting was called to order by the President, Mr. Albert E. Ebert, of Chicago, who congratulated the members upon the happy auspices under which they were permitted to reassemble, and called attention to the pleasing coincidence that, at this moment, the British Pharmaceutical Conference was in session at Bradford, England, and the Austrian Apothecaries' Association, at Vienna. He had this day received from the former the following kindly message:

BRADFORD, ENG., September 16, 1873.

To the President of the American Pharmaceutical Association,
at Richmond, Va., U. S. A.:

Our members send hearty fraternal greetings to yours.

THE PRESIDENT
Of the British Pharmaceutical Conference, at Bradford.

To which he had sent the following reply:

Richmond, Va., September 16, 1873.

To the President of the British Pharmaceutical Conference,
at Bradford, England ;

We return your fraternal greetings.

The President
Of the American Pharmaceutical Conference.

The President then introduced to the meeting Hon. A. M. Keiley, Mayor of the City of Richmond, who, in a brilliant and happy speech, extended to the members of the Association and their ladies a most hearty welcome and cordial greeting. The frequent applause and, at the conclusion of the speech, the hearty cheers testified how well his remarks had been appreciated by those present. The President replied briefly, expressing the thanks of the Association for the hospitable reception.

A Committee of Credentials was appointed by the chair, as follows: Prof. Procter, of Philadelphia; Geo. Leis, of Lawrence, Kansas; and Prof. G. F. H. Markoe, of Boston; which Committee subsequently reported delegates from the following Associations, duly accredited to the meeting, viz.: the Massachusetts, New York, Philadelphia, Maryland, National (of Washington, D. C.), Louisville, Chicago, and Tennessee Colleges of Pharmacy, the New Jersey, Newark, Mississippi State, and East Saginaw Pharmaceutical Associations, the Alumni Associations of the Massachusetts, New York, Philadelphia, and Maryland Colleges of Pharmacy, and the Literary and Scientific Society of the German Apothecaries of the City of New York.

At a subsequent session the Secretary handed in the credentials of the Cincinnati College of Pharmacy, which had been previously overlooked. The credentials of the Kansas College of Pharmacy, and of the Allegheny County Pharmaceutical Association, not having arrived, Mr. Geo. Leis, of the former, and Messrs. W. H. Brill and H. S. Lutz, of the latter Society, were invited to seats as delegates.

Mr. Balluff, from the Business Committee, reported resolutions inviting to seats upon the floor Professor Pratt, of Washington and Lee University, the members of the Faculty of the Virginia Medical College, and the Medical profession in general; also a resolution inviting the public to visit the exhibition on Wednesday evening, between the hours of 7½ and 9½ o'clock.

Dr. Menninger, on behalf of the Executive Committee, reported the names of 51 candidates for membership. Messrs. S. M. McCollin and E. C. Jones having been appointed tellers, the President was, on motion, directed to cast an affirmative ballot in favor of the candidates. An additional number of applicants for membership was soon after reported and likewise elected. At the first call of the roll 70 members were found to be present.

The following reports were handed in: Report of the Executive Committee with the report of the Permanent Secretary, of the Committees on the Progress of Pharmacy, on the Drug Market, on Papers and Queries, on Legislation, on Adulterations and Sophistications, on Arrangements for the Meeting of 1876, on Formulas for Elixirs, on the Editorship of the Report on the Progress of Pharmacy, and on the Photographic Album.

The amendments to the by-laws proposed at the Cleveland meeting were, after some discussion, adopted. One of these amendments defines the Societies which shall be entitled to representation at the annual meetings to be *all local organizations of pharmacists* (Art. vi, Chap. vi); the other directs the appointment of the Committee on Specimens to be made at the first session instead of at the second, as heretofore. The amendment to the Constitution lying over from the previous meeting, and relating to the creation of a sinking fund, was for the present postponed.

An invitation from the Young Men's Christian Association to visit their rooms and make use of their library, was received and directed to be properly acknowledged by the Secretary.

Prof. Procter read the report of the Committee on the Editorship of the Report on the Progress of Pharmacy: it recommends that the labor be entrusted to a salaried officer of the Association, to be called Reporter on the Progress of Pharmacy, proposes the necessary alterations of the Constitution and by-laws, and recommends the election of Prof. C. L. Diehl, of Louisville, Ky., to this position. The report was accepted and the proposed amendments adopted.

The following Committee to Nominate Officers for the ensuing year was appointed by the delegations named above: Messrs. G. F. H. Markoe, David Hays, Chas. Bullock, Lewis Dohme, Wm. S. Thompson, C. L. Diehl, A. E. Ebert, B. Lillard, R. Rickey, C. W. Badger, J. T. Buck, S. S. Garrigues, C. A. Tufts, H. C. Porter, H. A. Vogelbach, A. A. Kleinschmidt, Chas. Eimer, Geo. Leis and H.

S. Lutz. To this number the following were added by the President from the Association at large: Messrs. A. Boyd, Utica, O.; Wm. Heyser, Chambersburg, Pa; A. S. Lee, Raleigh, N. C.; Wm. Vincent, Williamsburg, N. Y., and Chas. M. Helman, Cincinnati, O.

The reports of the Executive Committee and Permanent Secretary were read; the former reports the decease of the following active and honorary members: Prof. Edward Parrish, of Philadelphia; Kline C. Lineaweaver, of Washington, D. C.; T. W. Metcalf and W. E. Bayliss, of Brooklyn, N. Y.; Elias Durand, of Philadelphia; Prof. Dr. J. F. H. Ludwig, of Jena, and Dr. C. L. Arthur Casselmann, of St. Petersburg, Russia.

The report of the Secretary suggests that the Association grant permission to the pharmaceutical journals of this country to print the essays and volunteer reports in advance of the publication of the Proceedings. The incidental expenses during the year amounted to $402.53 of which sum $79.65 was for freight, and $143.50 for postage. An editorial note, appended to page 280 of the last volume of Proceedings, was reported to be erroneous; the note which should be erased, occurs in the description of the process for assaying Seidlitz powders, as followed by Mr. C. W. Grassly, and is as follows:

> The author does not state how he prevented the contamination of the precipitated sulphate of baryta with bitartrate of potassa, which must be precipitated after adding acetic and muriatic acids, except by *heating the resulting liquid.*

A letter from Mr. Jas. R. Mercein, of Jersey City, one of the members of the Committee on the Progress of Pharmacy for the Year 1871–72, was read, explaining that the portion of the annual report which he had agreed to furnish had been finished in due time, and that the Chairman of that Committee had been duly notified by him some time before the last meeting took place, but had failed to answer. It was then

> *Resolved,* That Mr. Mercein be requested to present his report on the progress of pharmacy for the year 1871–72 to the Association.

Prof. Diehl offered to arrange, if necessary, the report of Mr. Mercein for publication, which was accepted by resolution.

The Chair appointed the following Committee on Specimens: Dr. A. W. Miller, of Philadelphia; M. L. M. Peixotto, of New York; Jos. L. Lemberger, of Lebanon, Pa.; G. J. Luhn, of Charleston, South Carolina; and David Hays, of New York. At the next session Mr. Peixotto was excused from serving on this Committee, and Mr. W. H. Scott, of Richmond, appointed in his place.

The Secretary laid before the Association two volumes of the Medical and Surgical History of the War of the Rebellion, received from the Surgeon General U. S. A., also one volume of the Report of Columbia Hospital for Women, and Lying-In Asylum, Washington, D. C. By J. Harry Thompson, A.M., M.D.

The President read his Annual Address, reviewing the labor of the Committees and making several important recommendations aiming at an increased usefulness of the Association. The address was well received, and referred to a committee of three, consisting of Messrs. Chas. Bullock, L. V. Heydenreich and Dr. E. P. Nichols. The Association then adjourned until 9 o'clock the following morning.

Second Session—Wednesday Morning.

After the reading and approval of the minutes of the first session the Nominating Committee recommended the election of the following officers for the ensuing year:

President, John F. Hancock, of Baltimore, Md.

Vice-Presidents, William Saunders, of London, Ontario
John T. Buck, of Jackson, Miss.
Paul Balluff, of New York.

Treasurer. Chas. A. Tufts, of Dover, N. H.

Permanent Secretary, John M. Maisch, of Philadelphia.

Reporter on the Progress of Pharmacy, C. Lewis Diehl, of Louisville, Ky.

Executive Committee, Thos. S. Wiegand, *chairman*, of Philadelphia; George Leis, of Lawrence, Kan.; Chas. L. Eberle, of Philadelphia; Henry J. Menninger, of Raleigh, N. C.; and John M. Maisch, *ex officio.*

Committee on Drug Market, P. W. Bedford, *chairman,* of New York; Wm. H. Brown, of Baltimore; Wm. P. Keffer, M.D., of New Orleans; Wm. H. Brill, of Pittsburg; and Wm. S. Merrell, of Cincinnati.

Committee on Papers and Queries, Jos. P. Remington, *chairman*, of Philadelphia; Lewis Dohme, of Baltimore; and Benj. Lillard, of Nashville, Tenn.

Business Committee, Edward P. Nichols, M.D., *chairman*, of Newark, N. J.; Joel S. Orne, of Cambridgeport, Mass.; and John F. Judge, of Cincinnati.

The report was accepted, and Messrs. Boyd and Hassencamp having been appointed tellers, the President was directed to deposit an affirmative ballot for all the nominees. Professors Procter and Stabler were appointed a Committee to conduct the President elect to the chair; but Mr. John F. Hancock not being in the hall, the first Vice-President elect, Mr. Wm. Saunders, was invited to preside.

Dr. Tufts read the Annual Report of the Treasurer, which was accepted and referred to an Auditing Committee, to be appointed by the President.

There was a balance of over $900 in the hands of the Treasurer at the beginning of the meeting.

The following letter was read:

September 12, 1873.

To the American Pharmaceutical Association:

Gentlemen:—To further original investigation and to inaugurate a system of prizes by this Association to those who by study and application shall add to our knowledge of medicinal substances, I have the pleasure to present to this Association the enclosed sum ($500) to be used in the following manner: The money to be properly invested by order of the Executive Committee, and the annual interest derived therefrom to be appropriated for conferring a suitable prize for the best essay or written contribution containing an original investigation of a medicinal substance, determining new properties or containing other meritorious contributions to knowledge, or for improved methods of determined merit for the preparation of chemical or pharmacal products. The prize to be awarded by a suitable committee within six months after the annual meeting at which the essays are presented for competition; provided that in case no one of the essays offered is of sufficient merit to justify the award, in the judgment of the committee, all may be rejected, and the sum added to that of the fund. Respectfully,

Albert E. Ebert.

The gift was accepted with the thanks of the Association, and the President directed to appoint a committee of three to carry out the objects of the donor. This fund was, later in the session, directed to be called the *Ebert Fund*, and the prizes awarded from the proceeds thereof the *Ebert prize*, agreeable to a resolution offered by Mr. G. Leis.

The President elect, having arrived, took the chair after some appropriate remarks, and appointed Messrs. N. H. Jennings, of Baltimore; Benj. Stacey, of Cambridgeport; and T. Roberts Baker, of Richmond, a Committee to Audit the Treasurer's Accounts.

Propositions for membership were received and the applicants duly elected, Messrs. Hassencamp and Jones acting as tellers.

The report of the Committee on Adulteration and Sophistications was read by Mr. Peixotto, accepted and referred. The report on the Progress of Pharmacy, read by Prof. Diehl, was ordered to take the same course. On motion, the sum of $250 was directed to be paid to Prof. Diehl as a partial acknowledgement for his time and labor in voluntarily preparing this report.

Letters were read from Mr. W. G. R. Frayser and Messrs. C. R. Rees & Co., offering to prepare a photographic group picture of the members of the Association. The Secretary was directed to acknowledge both letters and inform the writers that their kind offers must be respectfully declined for want of time.

Prof. Diehl read the report of the Committee on Arrangements for the Meeting of 1876, which, after suggesting various measures for the celebration, recommends that the meeting of 1875 be held in the city of Boston, in order to have a full attendance and the better to arrange for the centennial.

The resignation of Mr. C. W. Grassly, of Chicago, was offered and read. This communication being deemed insulting to the officers and members of the Association, his resignation was rejected, and, on motion of Dr. Squibb, he was expelled, by a vote of 58 to 2, for using indecorous language to the Association and its officers.

Dr. Squibb read a volunteer paper on the buying and selling of alcohol, which was accepted and referred.

A Committee of three on the time and place of the next Annual Meeting was directed to be appointed; the President named Messrs. Joel S. Orne, R. H. Gardner and Louis Dohme to serve on this Committee.

The Association then went in a body to the exposition room, and afterwards adjourned until 3 o'clock, P. M.

Third Session—Wednesday Afternoon.

The minutes of the previous session having been read and approved, the report of the Auditing Committee was read and accepted; the Committee found the accounts correct and the books in admirable order.

The salary of the Reporter on the Progress of Pharmacy was next considered, and on motion of Mr. Peixotto, seconded by Dr. Squibb, the By-Laws were so amended as to provide that he shall receive such sum for his report as shall be annually determined.

On motion, the regular order of business was postponed till the following morning, and this afternoon session mainly devoted to the reading and discussion of papers.

Mr. H. N. Rittenhouse read a paper in answer to query 1, on a permanently flexible isinglass plaster. Mr. P. F. Lehlbach, in answer to No. 7, presented a paper on *Sapo mollis*, accompanied by some samples.

Dr. Squibb read a paper on rhubarb, and called particular attention to the fact that even the best rhubarb of commerce appeared to be losing that peculiar aromatic odor formerly so noticeable, and which he considered one of the most reliable tests of the root. He accounted for this by suggesting that artificial process of drying, forced production, &c., might be the causes. He submitted three boxes of specimens of the best chests that had been imported at New York the past year. On motion, this was accepted and referred for publication.

Dr. Squibb also read an essay on Physicians' Pocket-Cases, in which he described one of his own contrivance, provided with a minim liquid measure, or pipette, to draw the contents from the vials without dropping or pouring, and with more accuracy than by either of those processes. He presented specimens of the cases, &c., and announced that they could be made and used by any one who chose, as he did not propose to patent them.

The following letter was read by the Secretary :

Richmond, Va., Sept. 17, 1873.

To the Officers and Members of the American Pharmaceutical Association :

Gentlemen :—In behalf of the Pharmacists and Druggists of this city, I hereby extend to you a cordial invitation to participate with us in an excursion down James River, on the afternoon of Thursday, 18th inst., at 3 o'clock.

Very respectfully,

Wm. H. Scott, *Chairman Com of Arrangements.*

Prof. Markœ, one of the members of the Pharmacopœia Committee, read an individual report, containing criticisms on the pharmacopœia, which was accepted and referred.

In answer to query 10, Mr. Bedford reported verbally that balsam of tolu cannot be emulsionized.

A partial answer to query 12, on the use of petroleum benzin for extracting oleoresinous drugs, was read by J. P. Remington, and the subject continued to him for another year.

A paper, by Mr. E. D. Chipman, on the proper proportions of sugar and honey in Vallet's mass, was read in answer to query 15 also one by Prof. Procter, on the value of orange-colored glass as a preventive of the chemical influence of light; this subject was continued for another year.

The following papers were read: by the Secretary, on query 21, in relation to the proper time for collecting biennial medicinal plants; by J. P. Remington, on cheap ointment boxes; by Prof. Procter, on query 24, on the preparation of cucumber ointment; by Dr. Pile, on improvements in graduated measures, and on query 28, on labelling shop furniture, etc., by G. H. Schafer.

In a voluntary paper, Mr. G. W. Kennedy informs that he has separated gentisic acid and gentiopicrin from American columbo (*Frasera Walteri*).

Several new members were elected, Messrs. Kennedy and Lemberger acting as tellers.

The following letter was read by the Secretary:

Richmond, September 16, 187

Prof. J. M. Maisch, Permanent Secretary of the American Pharmaceutical Association, in session at Richmond, Va.:

Dear Sir:—It affords me pleasure to be in position to offer an exchange of our society's publications as a partial expression of our high appreciation of the laudable objects for which your association is organized. You may feel assured that whatever you may do to elevate the standard of your profession and thereby discountenance quackery and dishonest imposition will meet with the hearty favor and cordial support of the community in which you are assembled, and especially of the Medical Society of Virginia.

Very respectfully yours, etc.,
Landon B. Edwards,
Recording Secretary Medical Society of Virginia.

On motion, the proposed exchange was accepted, and the Secretary directed to notify Dr. Edwards.

The Association now adjourned until 9 o'clock the following morning.

Fourth Session—Thursday Morning.

After the minutes had been read and approved, Dr. Nichols presented the report of the Committee appointed at the first session, to consider the suggestions contained in the President's address and Secretary's report.

Some discussion ensued upon the recommendation of the report that the Executive Committee and Permanent Secretary be allowed a discretion in the publication in pharmaceutical journals or elsewhere of any essay or article read before the Association in advance of the publication of the annual volume of transactions. Dr. Squibb moved to strike it out. Agreed to. The report, as amended, was then adopted.

The proposed amendment to the constitution to provide for a sinking fund, offered last year, was rejected.

After some discussion on the propriety of declining in advance for future meetings all invitations to excursions until the labors of the Association shall have been performed, the Committee on the next Annual Meeting presented their report, recommending the Twenty-second Annual Meeting to be held in the city of Louisville, on the second Tuesday in September, 1874. The report was received and adopted without a dissenting vote, and Prof. Emil Scheffer was, by acclamation, elected Local Secretary.

The reports of the Committees on Legislation and on the Photographic Album were read and the Committees discharged. The report of the Committee on Drug Market was read by Mr. Bedford, accepted and referred.

The President appointed the following Committee on Album: P. W. Bedford, of New York, Chairman; C. A. Tufts, of New Hampshire; R. J. Brown, of Kansas; J. P. Remington, of Philadelphia, and E. H. Sargent, of Chicago.

The President also announced the appointment of the following Committee on "Ebert prize:" Messrs. Charles Bullock, Wilson H. Pile and John M. Maisch, of Philadelphia.

Prof. Procter read a valuable essay on query 30, "What shall I read and where shall I begin?" Prof. Lillard a voluntary paper on homœopathic pharmacy, and Dr. Garrigues on American bromine production. The latter also exhibited oak galls collected by him near Huntington, W. Va. Dr. Squibb stated that galls from the oak and sumach had been used for making gallic acid.

The following papers were read: On poisons and the protection against their improper use, by C. L. Eberle; On the insect enemies of drugs, and On the Mexican honey ant, by William Saunders; On a general apparatus stand, etc., and On ergot and its preparations, by Dr. Squibb; On the proper alcohol strength of tincture of colombo, by C. L. Eberle; On the purity of commercial tartaric acid, by H. J. Rose. After some verbal remarks on under- and over-hydrated chloral, by Prof. Diehl, query 34 was dropped.

Mr. J. F. Hancock read the report of the Committee on Elixirs, etc., which was accepted and the Committee discharged. It was then

Resolved, That this report be adopted, with the recommendation that these formulas be used by members of the Association, and that the Secretary be instructed to send a printed copy of this report to the medical societies of the Union, with the suggestion that physicians, if prescribing elixirs at all, prescribe only such formulas as have been adopted by this Association.

Resolved, That Mr. J. F. Hancock be appointed the committee on unofficinal formulas.

The delegates of all incorporated pharmaceutical societies not represented on the Committee on the Pharmacopœia, were requested to nominate one member for said Committee, and report at next session. After the election of new members, Messrs. R. W. Gardner and C. W. Badger having acted as tellers, the Committees on Adulterations and Sophistications, on Legislation, on Liquor Dealer's License of Apothecaries, and on Infringement of Stamp Tax, were continued for another year, Dr. E. R. Squibb having, at his request, been previously excused from serving on the Committee on Liquor Dealer's License, and his name having been substituted by that of R. W. Gardner, of Jersey City.

A vote of thanks to the retiring officers was passed and the Association adjourned until Friday morning at 9 o'clock.

Fifth Session—Friday Morning.

After the reading and approval of the minutes, the amendment of the by-laws was adopted, requiring the President to discuss in his annual address such scientific topics as he may select, instead of reviewing the labors of the Committee during the past year.

The report of the Committee on Specimens was read by Dr. A. W. Miller, accepted and referred.

On motion of Dr. Squibb, the salary of the Reporter on Progress of Pharmacy was fixed at $400 for the ensuing year. Notice was also given by Dr. Squibb of a proposed amendment of the by-laws to increase the salaries of the Treasurer and Permanent Secretary $100 per annum, in view of the increased duties of both officers; the proposition lies over until the next meeting.

The following essays were read and referred: On the amount of carbolic acid necessary to prevent the growth of organisms in solutions of alkaloids, by E. H. Squibb; On the influence of heat upon the medicinal properties of sarsaparilla, by Prof. J. F. Judge; On the reaction of chloral hydrate, by J. M. Maisch; On gelseminia and gelseminic acid, by C. F. Fredigke; On assaying cantharides and their preparations, by J. M. Maisch; On Indian remedies, by B.

Stacey; On weights and measures, by Prof. O. Oldberg; On fluid extract of vanilla, by Dr. E. P. Nichols: On fluid extract of sarsaparilla, by Prof. Judge; also a paper by A. T. Moith, discussing the relations of physicians and apothecaries.

The Secretary exhibited a sample of muriate of cinchonia, which is put up in New York in fraudulent imitation of sulphate of quinia of French manufacture, and at the present time extensively sold into the interior towns of the Southern States.

Prof. Markoe showed diatomaceous earth, collected by him in Richmond, Va.

After the election of new members, Messrs. Remington and Kennedy acting as tellers, the Business Committee offered the following:

> The American Pharmaceutical Association is now about to close its twenty-first annual session in the capital of the Old Dominion. Some hesitation was felt at the last meeting in deciding on this place, but the success of our experiment at Cleveland induced us to repeat it. The kind courtesy and generosity of our reception. the unbounded old Virginia hospitality of the pharmaceutists and citizens of Richmond and the beautifully appropriate welcome of His Honor, the Mayor of this city, has dispelled every doubt of the propriety of our selection. Nothing has been left undone that could add to our comfort and pleasure, and when we leave this place to return to our homes we shall carry with us pleasant recollections of this visit which will not soon be effaced from our memory. As a faint expression of our warm appreciation of the kindness shown us, be it
>
> *Resolved*, That the hearty thanks of this Association be and are hereby tendered to the pharmaceutists and citizens of Richmond for the cordiality of our reception at this our first visit to the "Sunny South."

President Hancock arose and in a few appropriate and well-timed remarks bore testimony to the warmth of the reception of the Association at the hands of the pharmaceutists and citizens of this city. He said that they had never met with a heartier reception anywhere. He indulged the hope that at their next meeting, in Louisville, representatives would be present from the Virginia Pharmaceutical Association.

Thanks were also tendered the Richmond press for their faithful reports of its proceedings, after which the Secretary, at 12¼ o'clock, offered a resolution, which was adopted, that the Association do now adjourn to meet on the second Tuesday in September next, at 3 o'clock P. M., at Louisville, Ky.

PHARMACEUTICAL NOTES.

By J. Donde.

Vallett's Ferruginous Mass, prepared by myself and such as I have seen druggists getting from New York, becomes hard after some time, so that it cannot be used any more. To avoid this change, which I attribute to the honey, I made some with sugar and glycerin after the following formula:

Sulphate of iron,	500 grams
Carbonate of sodium,	600 grams
Rain water,	8 litres
White sugar in powder,	280 grams
Glycerin,	150 grams

Operate by the process of Soubeiran, or follow the U. S. Pharmacopœia, and wash, strain and press the carbonate of iron, which weighs 500 to 600 grams, add the sugar and glycerin and evaporate to a pilular consistence.

This preparation will keep for three years.

Syrup of Digitalis suitable for Preparing the Infusion.—Medicinal substances produce different and sometimes opposite effects, not only in proportion to their dose, but also in accordance with the manner in which they are administered. Thus: the infusion of colombo is used as a tonic, and the decoction in dysentery; rhubarb is tonic in the dose of five decigrams, purgative in doses of four to eight grams, and it has an astringent action in decoction or when roasted. In general, it is evident that the diversity of preparation in which a medicinal substance may be given, in modifying its qualities, will determine different and often opposite effects.

In the substances named above, the pharmacist should follow closely the prescription of the physician, and thereby avoid all trouble, in case the latter has erred in the form of the preparation. But there are other substances—like fox-glove—the correct pharmaceutical preparation of which is the infusion and not the decoction; and if errors have been made in prescribing, they must be corrected by the pharmacist, who is educated not merely by having practiced his profession for four or five years, but who has also mastered the principles of science.

I remember a case in which a physician prescribed digitalis in decoction; but the pharmacist, seeing the error, took the infusion instead. The diagnosis had been well made, the therapeutical indications even better carried out, for the patient felt relieved. The following day the physician ordered this prescription to be repeated, which was done by another pharmacist, not so well instructed, who followed servilely the formula prescribed, and after the patient had taken two spoonfuls she was nauseated, had headache, etc. The physician having been called in, learned, on inquiry, that his prescription had been properly modified the first time and had been followed literally in the last instance. Such and similar cases may happen in countries where the laws allow to practice pharmacy without demanding from the apothecaries any proofs regarding their knowledge and scrupulous diligence, so requisite for practicing properly a profession of such direct influence upon the health and life of men. On this subject the *Chemical News* says: "An ill informed pharmaceutist is more dangerous than an ignorant physician; for the former may cause the death of the patient directly, while the physician has a lightning conductor in the way of his homicidal prescriptions, and this lightning conductor is the pharmaceutist."

Sometimes pharmacists do not take the trouble to weigh the substances for making infusions or decoctions; principally in well reputed and frequented stores, when the customers urge the apothecary for their medicines, inducing him to shorten his operations, to the disadvantage of the medicine. To prevent such inconveniences in the case of digitalis, I have prepared a syrup which has been employed for some time, principally in the store of Mr. J. Font. The formula is as follows:

Simple syrup, ...	2000 grams
Hydro-alcoholic extract of fox-glove, .	50 grams
Rain water, ...	40 c.c.

Concentrate the syrup to 32°, at a boiling temperature, remove from the fire, and when it has cooled to pretty nearly 50° C. add the extract dissolved in the water. This will yield a syrup of fox-glove containing one gram of the extract, which is equivalent to three grams of the leaves in 40 grams of syrup. By dissolving 40 grams of it in 210 grams of water, the infusion will be ready for use, strongly bitter and possessing its characteristic odor.

Merida, Yucatan, August 8th, 1873.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Analysis of Juniper Berries.—E. Donath has obtained the following results: water, 29·44; volatile oil, 0·91; formic acid, 1·86; acetic acid, 0·94; malic acid (in combination), 0·21; wax-like fat, 0·64; green resin of the etherial tincture, 8·46; hard brown resin of the alcoholic tincture, 1·29; bitter substance, by Steer named juniperin, 1·37; pectin, 0·73; protein compounds, 4·45; cellulose, 15·83; ashes, 2·33.—*Chem. Centralbl.*, 1873, *No.* 29, *from Polyt. Journ.*

Coloration of Chloralhydrate by Oil of Peppermint.—On bringing the two substances in contact, a reddish color is soon developed, which gradually darkens to cherry-red. The color is readily soluble in ether, alcohol and chloroform; boiling does not destroy it; sulphuric acid heightens its intensity, and, if now chloroform be added, a dark violet tint is produced. The oils of lemon, bergamot, juniper, crisped mint, rosemary, cloves, anise and fennel do not produce any coloration with chloralhydrate.—*Archiv d. Pharm.*, 1873, *July* 29.

Quercetin in Catechu and Quercitrin in Sumach.—Aqueous solutions of catechu, on being agitated with ether, yield to this solvent quercetin, which may be obtained pure by washing the etherial extract with water, dissolving the residue in strong alcohol, and mixing this solution with boiling water. All varieties of catechu contain it, but some in very minute proportion. On treating the alcoholic extract of sumach with water, this with ether, &c., quercitrin is obtained.—*Zeitschr. f. Anal. Chem.*, 1873, 127.

Balsam of Peru Adulterated with Storax has been met with by H. Schweikert. Besides the spec. gravity, which was 1·12 only, there was nothing to suggest any adulteration, as it yielded, like the pure balsam, a hard resin with strong sulphuric acid,* and developed no foreign odor on being warmed. Distilled with solution of table salt, little alcohol was found in the distillate, but oily drops which smelled strongly of storax. To detect such an adulteration, the author suggests petroleum benzin, which should yield a clear solution with pure balsam of Peru, but furnishes a turbid mixture with alcoholic solution of storax.—*Archiv d. Pharm.*, 1873, *July*, 53—55.

Iodo-arsenic Acid.—Prof. Silvestro Zinno, of Naples, has prepared this new compound by gradually adding iodine, diffused in water, to a boiling solution of arsenious acid, until the color ceases to disappear. After filtering the solution through wood charcoal and evaporating, the new acid separates after some time in small colorless crystals, having the composition AsO_3I_2, and of which 3·24 parts are soluble in 100 parts of water at ordinary temperature; its salts are insoluble or sparingly soluble in cold water. When treated with a hot solution of iodide of potassium, a portion of the acid crystallizes, on cooling, in fine silvery scales, and the solution yields, on evaporation, readily soluble cubical crystals of iodo-arsenate of potassium iodide, the composition of which was found to be KI,AsO_3I_2.—*N. Repert. f. Pharm.* 1873, *p.* 385—390.

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* See American Journal of Pharmacy, 1873, p. 353.

In the Preparation of Ergotin of Bonjean, it frequently happens that the liquids begin to ferment while being evaporated, and even that fermentation commences in the displacement apparatus. Henrotte recommends in such cases to express the contents of the percolator, and to heat the liquid to boiling for several minutes, when it is passed through a wet strainer, and may afterwards be evaporated without fear of further fermentation.—*Rép. de Pharm.*, 1873, 366.

Natural Iodine Wine.—Boinet proposes to ferment the juice of grapes in contact with seaweeds, particularly *Fucus vesiculosus*, and regards the product as the best, most natural and easiest for administration and assimilation. It is obtained by placing in suitable tanks alternate layers of crushed grapes and sea plants, and covering the whole with cut straw, as a protection from too much contact of air and to favor fermentation. After fifteen or twenty days the fermentation will be completed; the liquid is expressed and further treated as ordinarily in the preparation of wine. When finished it has a rather agreeable taste of sea plants, and is even readily taken by children. It has been successfully used in the hôpital des enfants. If this so-called natural iodine wine is not obtainable, the following is offered as a substitute:

Tincture of Iodine, . .	two grams,
Tannin, . . .	twenty-five centigrams,
Water, . . .	one thousand grams.

Of this mixture a tablespoonful may be taken by adults in wine at breakfast and dinner.—*L' Union Pharm.*, 1873, *July.*

Fig. 5.

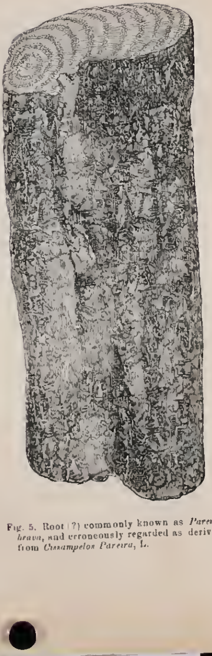
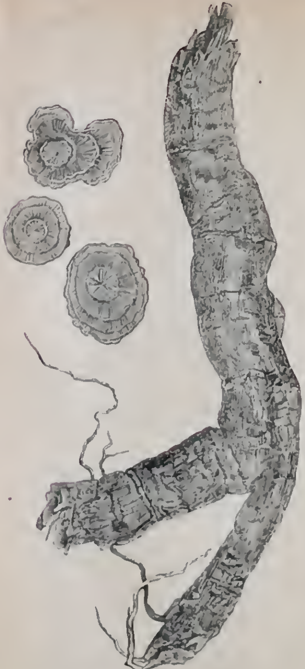


Fig. 5. Root (?) commonly known as *Pareira brava*, and erroneously regarded as derived from *Cissampelos Pareira*, L.

F.



TRUE PAREIRA BRAVA. Fig. 1. Root of *Chondodendron tomentosum*, from a sample purchased in London in 1863. Fig. 2. Transverse sections of roots received from Mr. J. Correa de Mello.

Fig

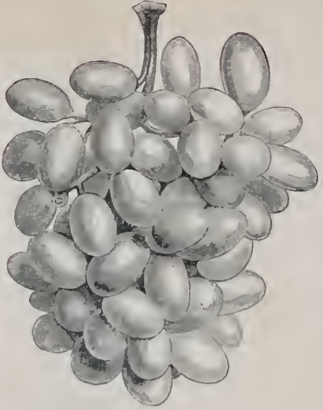


Fig. 3. Bunch of fruits of *Chondodendron tomentosum*, R. et P., from a specimen preserved in alcohol, sent by Mr. Peckolt.

Fig. 4

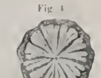


Fig. 4. Transverse section of stem of *Cissampelos Pareira*, L. From a Jamaica specimen.

Fig.

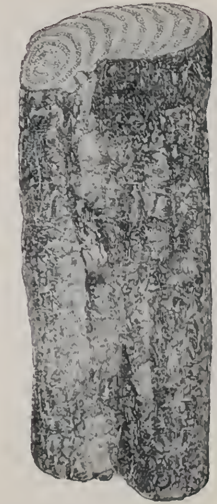


Fig. 5. Root (?) commonly known as *Pareira brava*, and erroneously regarded as derived from *Cissampelos Pareira*, L.

ON PAREIRA BRAVA.

By Daniel Hanbury.

The botanical origin of the various stems and roots known as *Pareira Brava* is extremely obscure. By most writers the drug is referred without question to *Cissampelos Pareira* Linn., a climbing plant of the order *Menispermaceæ* growing in the tropical regions of both the Old and New World.

Some years ago the difficulty of purchasing Pareira Brava of good quality in London induced me to seek a supply in the West Indies. I accordingly procured, on behalf of the firm of which I was then a member, a quantity of the stems and roots of *Cissampelos Pareira* L., collected in Jamaica under the supervision of Mr. N. Wilson, director of the Bath Botanical Garden in that island. The first importation was accompanied by herbarium specimens of the plant, the examination of which removed all doubt as to its origin. I also obtained specimens of stems of *Cissampelos Pareira* similarly authenticated, from correspondents in Trinidad, Brazil and Ceylon.

From these materials it at once became evident that the long accepted statement that Pareira Brava is derived from *Cissampelos Pareira* Linn. was erroneous.* In fact neither the stem nor the root of the plant at all resembles any of the forms of that drug I had ever met with in commerce.

What then is *true Pareira Brava?*—To answer this question we must look back to the early history of the drug.

The merit of having first given some account of Pareira Brava is usually conceded to the Dutch traveller Piso, who in his work *De Medicina Brasiliensi*, published in 1648, described a plant called by the Portuguese *Caapeba*, *Cipó de Cobras* or *Herva de Nossa Senhora.* Piso's figure is scarcely recognizable, but his description of the fruit as resembling the catkins of hop (*semen magnum coloris rosacei, e capsulis lupulo similibus prominens*) applies well enough to a *Cissampelos*, and in fact *C. glaberrima* St. Hil. is known under these Portuguese names in Southern Brazil at the present time. My friend, Mr. J. Correa de Mello, of Campinas, Prov. S. Paulo, has been good enough to send me a specimen of this plant and of its root; and the latter I find to be wholly unlike any sort of Pareira Brava.

That Piso does not mention Pareira Brava was indeed remarked as long ago as 1710;* and it is only since the drug has been supposed to be derived from *Cissampelos* that authors have identified it with Piso's *Caapeba*.

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* This fact was first pointed out in the *Pharmacopœia of India*, 1868, p. 8, note.

Pareira Brava was certainly first brought to Europe by the Portuguese. It first attracted general attention in 1688, when Michel Amelot, Marquis de Gournay, a privy councillor of Louis XIV, and a very distinguished political personage, brought it with him from Lisbon, whither he had been sent as ambassabor by the French king. There can be no doubt that the drug was considered to possess extraordinary properties. Rouillé, the successor of Amelot in the Lisbon embassy, also took home with him to Paris some Pareira Brava; and in 1710 we find it claiming the notice of the French Academy,† who requested Etienne François Geoffroy, Professor of Medicine and Pharmacy in the College of France, to investigate its virtues. Jean-Claude-Adrien Helvetius, a physician of great merit, who though a young man was consulted by Louis XIV in his last days, and was afterwards attached to the court of Louis XV, tried the new drug still earlier,‡ and gave strong testimony in its favor.

Both Geoffroy and Helvetius were correspondents of Sir Hans Sloane, that diligent promoter of science whose immense collections gave origin to the British Museum,—and among the Slonian MSS. I have found a letter of Helvetius§ addressed in 1715 to Monsieur Duyvenvoorde, ambassador from the States General to George I., a portion of which I will here quote:—

"I am extreamly pleased s^r that you have apply'd yo^{r}self to me for my advice about the use of the *Pareira Brava* which has been comended to you, because I can give you a very good account of it haveing been one of the first that introduced it in France. I have made abundance of lucky experiments about it which have made this medicine very well known to' me, wherefore I assure you, you can do nothing better than to make tryall of it. . . . The Pareira Brava is a root which comes to us from Brazil by the way of Lisbon, but which the war has rendered pretty scarce; however it is to be found among the good druggists and is sold [at] Paris for 40 livres the pound. 'Tis called in Brazil the Universall Medicine, and made use of there in all kinds of distempers. A Capuchin monk who came from thence told me he could not give it a greater character than by assuring me that in all their voyages they carried the gospell in one pockett and the Pareira Brava in another. . . ."

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* *Hist. de l'Acad. Royale des Sciences*, année 1710, 56.

† Id.

‡ Helvetius, *Traité des Maladies les plus fréquentes et des remedes spécifiques pour les guérir*, Paris, 1703, 98.

§ Sloane MS., No. 3340, p. 291.—The letter has already been published in *Phil. Trans.*, No. 346, Nov. and Dec., 1715, p. 365.

Helvetius recommended the finely-powdered root in five grain doses, to be taken in infusion warm like tea.

Petiver, apothecary of London, and Secretary to the Royal Society, an active collector of objects of natural history of every kind, whose letters are also in the Sloanian collection, thus wrote, Dec. 11th, 1716, to Colonel Worsley, His Majesty's Envoy at Lisbon :—

" . . . I am glad to hear y^{e} Brazil ffleet is safely arrived, w^{ch} I hope has brought some materialls for my succeeding *Collectaneas*, and amongst them nothing can be more welcome than specimens of y^{e} leaves and fruit of y^{e} Ipecacuanha, Pareira Brava, Balsam Capevæ and y^{e} true Brasile and Brasiletto woods, all which will be very acceptable discoveries. . . ."*

The first author to give an account in print of Pareira Brava seems to be Pomet, whose *Histoire des Drogues* was completed in 1692.† He describes the drug as then recently seen in Paris, and he figures the specimen given him by Tournefort.

Geoffroy, in his excellent *Tractatus de Materia Medica*,‡ a work he did not live to complete, calls the drug by its Brazilian name of *Butua*, or *Pareira Brava* of the Portuguese, and describes it as a root, woody, hard, contorted, externally of dark color, rough, with many wrinkles, some long, some running round it transversely, like that of *Thymelæa* [*Daphne Gnidium* L.], internally of a dull, yellowish hue, knit together, as it were, with many woody fibres, so that when cut transversely it exhibits several concentric circles, intersected by numerous rays of fibres passing from the centre to the circumference; inodorous, somewhat bitter, with a certain degree of sweetness like liquorice, as thick as the finger, or sometimes as a child's arm. He adds that the Brazilians and Portuguese most highly extol its virtues as a diuretic, lithontriptic, vulnerary, stomachic, cordial, and alexipharmic,* and, in fact, regard it as a complete panacea.

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* Sloane MS., 3340, p. 306.

† As proved by the letters of approbation which precede it. But it was not published until 1694.

‡ Tom. II. (1741) 21.

The question now arises—Can the drug which was introduced with so much of laudation be clearly identified?

As already stated, Pomet has figured it, and his engraving is excellent. But Sloane has left us better materials. In his collection of materia medica, now in the British Museum, there are many well-preserved specimens of the drug obtained from different persons and at different periods, *and all of one kind;* and in his voluminous manuscript catalogues and his other papers, are entries throwing light on their origin.

The first notice I have found is a letter from Lisbon, dated October 17th, 1699, addressed by Joseph Geston to John Ellis,† in which the writer says:—

"By order of my brother, Wm. Geston, I send you here enclosed six sticks of *Pareira Brava*, or *Parra Brava*. The use of it, I am informed, is in powder, one scruple, and to the strongest patient one octave [drachm] in Rhenish wine. . . . Its vertues are for the stone, gravell, obstruction of the urine, and for the colick,—a very excellent remedy."

Though this letter is not addressed to Sloane, nor is he mentioned in it, yet from its occurrence among his correspondence there can be no doubt that the specimens to which it relates were intended for him.

The entries in his manuscript catalogues, which are in his own hand writing, are these:—

"652. *Pareira Brava.*—From Brasile, pretended to be good for the stone."

"4039. *Pareira Brava.*—A root used in the stone."

"6708. The *Pareira Brava*, of a brown color, from Brazil, said to be the best sort.—From Mons$^{r.}$ Geoffroy."

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* Hill judiciously remarks that this is going too far in its praise, and yet omitting some of its real virtues. "It is certainly a diuretic," says he, "of no inferior kind, and has done great service in nephritic cases; and in pleurisies and quinzies has been attended with more success than almost any medicine we know of singly. In suppressions of urine scarce anything is more efficacious or more instantaneous in its effect, but it is folly to infer from this that it will dissolve the stone. . . . In cases of ulceration of the kidneys or bladder, when the urine is purulent and voided with great difficulty, there is scarce anything equal to this root as a remedy."—*Hist. of Mat. Med.* 1751, p. 600.

† Sloane MS., 4045, fol. 240.

"10471. Sev$^{ll.}$ specimens of the *Pareira Brava*, from Lisbon, accounted a great remedy in suppression of water and the stone,—according to Mons$^{r.}$ Geoffroy, the *Ambitua* or *Butua* of Zanoni.—From Dr. Fuller, Sevenoaks."

In 1866, I applied to my friend Theodor Peckolt, druggist, of Rio de Janeiro, then residing at Cantagallo, in the same province, on the subject of Pareira Brava, in consequence of which I received from him specimens of two plants, the one marked *Butua* or *Pareira Brava legitima*, the other *Butinha* or *Pareira Brava miuda* (literally *small Pareira Brava*), together with a large dried entire plant of the former. The herbarium specimens of these plants presented no characters by which I could distinguish them as two species; and Mr. Peckolt subsequently informed me that their difference consists chiefly *in habit*, and that the first or *legitimate* Pareira Brava is found in much drier situations than the small sort, or *Pareira Brava miuda.*

I have also received specimens from my friend Mr. J. Correa de Mello of Campinas, marked *Parreira Brava pequena* (*small Pareira Brava*) or *Abuta pequena*, and others labelled *Leaves of the plant producing Pareira Brava*, all of which seem referable to Mr. Peckolt's plant. Mr. Correa de Mello has likewise sent me the dried root, and I have also received the root as supplied by a drug house of Rio de Janeiro.

Within the last few weeks two specimens of roots bearing some leaves, marked respectively *Pareira Brava, large leaf*, and *Pareira Brava, small leaf*, have been presented to the Pharmaceutical Society as well as to myself by Mr. G. B. Francis, of the firm of Hearon, Squire and Francis. Between these two sorts I fail to recognize any difference.

The roots of Mr. Peckolt's *Pareira Brava legitima*, those sent me by Mr. Correa de Mello, and those received from Mr. Francis, completely agree with Sloane's specimens, as well as with Pomet's figure.

As to the plant, I identify it with *Chondodendron** *tomentosum* of Ruiz et Pavon, with an authentic specimen of which in the herbarium of the British Museum I have compared it. It is the *Cocculus Chondodendron* of De Candolle (Prod. I. 98), and has been figured as *Coc-*

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* Mr. Miers (*Contributions to Botany*, III., 307) contends for this name being written *Chondrodendron* as more in accordance with its derivation from χονδρος. But I think it safer to retain the original spelling as accepted by all botanists.

culus (?) *platyphylla* by Auguste de St. Hilaire,* and by Eichler,† as *Botryopsis platyphylla* Miers. It agrees well with the plate of *Cissampelos Abutua* in Vellozo's *Flora Fluminensis*‡ with which Eichler doubtfully identifies it.

Chondodendron tomentosum has been found in various parts of Brazil, where it is known as *Butua* and *Abutua.* Its raceme of large oval berries, exactly like a bunch of grapes, is another evidence that it is the plant which the old Portuguese colonists called *Pareira Brava* or *Wild Vine.*§ Neither the fruit nor the foliage of *Cissampelos Pareira* have anything about them suggestive of a grape-vine.

The root of *Chondodendron* cannot be confounded with the stem, which is woody and fibrous and of a different structure. Geoffroy's description of the former, which I have translated at page 451, is correct as far as it goes. I may add that the numerous specimens I have seen present but little variation. All are portions of a tortuous, branching root, wrinkled longitudinally and having transverse fissures, constrictions, or ridges. The root is externally of a blackish-brown, and light yellowish-brown within. In Mr. Francis's drug there are young roots having the remnants of green aerial stems rising from the upper part. In Mr. Peckolt's specimen the aerial stems are fully preserved, as thick as the finger and many feet in length. The root seems to be gorged with juices so that under the penknife it cuts more like a very hard fat or wax than as a fibrous wood. In transverse section it does not display zones of the same regular and beautiful definition that one sees in ordinary Pareira Brava. In the root of Chondodendron there is a large well-marked central column composed of wedges diverging from a common axis, around which are arranged a few concentric rings intersected by wedge-shaped rays which are often irregular, scattered, and indistinct. The axis is not often eccentric.

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* *Plantes Usuelles des Brasiliens*, pl. 42.

† Martius, *Flor. Bras.*, fasc. 38, tab. 48. Eichler makes *two* species under the name of *Botryopsis*. Miers *eight*, six of them being apparently forms of *Ch. tomentosum*. Mr. Mier's species, as named by himself, can be seen in the British Museum, and a type-specimen of the plant figured by Eichler in the Kew Herbarium.

‡ Tom X., tab. 140. Mr. Miers regards this to represent his *Abuta macrophylla*, a very different plant.

§ In Portuguese the word is written *Parreira*, and signifies a vine that grows against a wall or over an arbor. *Párra* is a vine-leaf.

In *Cissampelos Pareira* the root and stem are nearly alike in structure, and in transverse section show no concentric rings. Those received from Jamaica, which were the largest that could be collected, were rarely so much as an inch in diameter, and in many localities it is difficult to obtain the stem or root thicker than a goose quill.

The Pareira Brava of English commerce is mostly of larger size than the root of *Chondodendron*, and is a much more woody substance. Its internal structure, which is familiar to most druggists, is very remarkable, consisting of a series of layers which are often developed exclusively in one direction. Nothing is known of the botanical origin of this drug, beyond the fact that the structure of the wood is that of the order *Menispermaceæ*.

Of late years even this sort has become rare, and its place has been taken by a drug completely void of medicinal power. This latter consists of cylindrical woody truncheons which have an internal structure not very diverse from that represented below, though generally less eccentric, with always a distinct central pith. The wood is tasteless, and often seems to have been injured by damp. It should be rigidly excluded from pharmaceutical use.

Several other sorts of Pareira Brava are known—at least in South America. One, of which there is a parcel now in the London market, as remarkable for its large size, and for being internally of a fine yellow. As it is also very bitter, it probably contains berberine.

Another sort is derived from *Abuta rufescens* Aublet, a well-marked plant growing in Guiana and North Brazil. Specimens of a thick woody root, marked *Abutua grande* or *Parreira Brava grande*, and attributed to this species have been sent to me by Mr. Correa de Mello; they exhibit numerous concentric layers traversed by very distinct, dark medullary rays, the inter-radial spaces being white, and rich in starch. It is apparently a well-marked sort, and one I have not seen in commerce.*

In conclusion, I strongly advocate returning to the use of the root of *Chondodendron*, which is the drug on which the reputation of Pareira Brava was originally founded.

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* When Aublet was in Guiana, 1762 4, the stems of *Abuta rufescens* were shipped to France as *Pareira Brava blanc*. He says there is a variety of the same with the woody parts reddish, which is known in Cayenne as *Pareira Brava rouge*. He also describes and figures a plant he calls *Abuta amara* or *Pareira Brava jaune*, which has the wood yellowish and very bitter.

This last is, I think, identical with the yellow wood of which, as I have said, there is a quantity now on sale as "*Pareira Brava*." See *Hist. des Plantes de la Guiane Françoise*, i. (1775), 618-21, tab. 250-51.

In Brazil this root is regarded as the legitimate sort, and is still held in the highest esteem.

Though it has not been clearly recognized by European writers, it is not altogether unknown. Guibourt* seems to have been acquainted with it and even correctly surmised its botanical origin. It is the root figured by Göbel and Kunze,† and there is an old specimen of it in the Pharmaceutical Society's Museum marked *Pareira Brava.* I myself met with it in the market in 1862. Lastly, Dr. Squibb has pointed out‡ that some small lots of Pareira Brava imported into New York in 1871 consisted in large part of a drug entirely different from any previously seen, and that he at first supposed it an adulteration; but that subsequent examination had shown him that the drug in question agreed well with the older descriptions of Pareira Brava, and especially with Pomet's figure, so that he was convinced it was true *Pareira Root.* From Dr. Squibb's description I feel sure that the drug before him was the same as that to which I have called attention in the present paper.

There can be no doubt that it would become plentiful if the demand should arise, and that it would advantageously replace the worthless kind now found in the drug trade.—*Pharm. Journ., Aug.* 9, 1873.

THE COLLECTION OF GUM SENEGAL IN SENEGAMBIA.§

By Dr. Beranger Feraud.

Since the discovery of Senegambia, the gum of the country has been one of the principal objects of exchange between Europeans and the indigenous blacks, and the traffic has been so extensive and important that even the policy of the country has sometimes been subordinated to it. Senegal gum is yielded by several trees of the same genus (*Acacia arabica*, *A. Seyal*, *A. Verek*, *A. Adansonii*), and it cannot be pretended that all the species are yet known. These gum trees, which grow in the Sahara regions, are cultivated by the

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* *Hist. des drog.*, ed. 4, iii. (1850) 671.

† *Pharm. Waarenkunde*, ii. (1830-34) tab. 13, fig. 1, b c.

‡ *American Journal of Pharmacy*, March 1, 1872, 107.

§ *L'Union Pharmaceutique* (*Bulletin*), i, 67, from a memoir on the natural products of Senegambia, published in the *Moniteur Official de Sénégal.*

Moors and some black tribes, who carry the product to the various markets scattered along the banks of the Senegal. The trees also grow spontaneously in many parts of Senegambia, especially on the right bank of the Senegal; it is there that the forests of gum trees occur, if such a term can be applied to the very thinly sown agglomerations of these trees.

The forests of gum trees from which the products are sent into Senegambia are three in number:—(1) that of Alfatak, or Afatac, which is situated about fifteen leagues from the river, opposite Podor, and extends to Lake Cayar, occupying a large portion of the country of the Brakna; (2) that of Liebar, or El Ebiar ("the wells"), situated thirty or forty leagues from the river, in the country of the Darmancour Moors, and containing many small red gum trees (*A. nilotica*); (3) that of Sahel, in the territory of the Tararza Moors, the product of which is carried to Gahé. The latter forest consists exclusively of white gum trees, and it is the gum from these trees which is carried to Portendick to supply the demands of English traders.

The following details are given on the authority of M. Carrière. A gum forest is looked upon as a sacred place, where no stranger dares break off a branch or carry away the gum, under pain of celestial in addition to terrestrial punishments. Each of the members of a tribe which possesses a gum forest has the right to collect gum in it, and his share depends upon his activity, he having a right to that only which is collected by himself or by his slaves. The first collection of gum commences in October, at which time those of the tribe who intend collecting the gum establish themselves in huts on the outskirts of the forest, and within reach of the wells. The collection of gum is very laborious, for the forest abounds in climbing and prickly plants, so that the trees are not gained without infinite trouble and numerous punctures and excoriations; but the appetite for gain overcomes all obstacles. The master is stimulated by the wants of his family and by pride, the slave is driven by hunger and the fear of beatings; thus all labor with sustained ardor, and little by little the gum is collected.

For the removal of the gum from the branches of the acacia whence it exudes, the Moors arm themselves with long sticks crooked at the end, by the aid of which they remove the tears of gum, which collect in balls of varying size. When the work to be done lies within so small a compass that in the middle of the day the collectors can return to the wells without too much loss of time, they carry only a small bag made of skin, into which the balls of gum are placed. But if the outskirts of the forest have been explored, and it be necessary that the collectors penetrate further into the interior, another bag containing a small provision of water is also taken. But the master never allows the slave to carry any food with him, stimulating him to greater exertions by the promise, too often broken, of a good feast on his return. Should the unfortunate captive not have gathered the prescribed quantity by the evening, and, exhausted by hunger and the burning heat, dare to eat any of the gum he has collected, he is mercilessly beaten. The first collection of gum finishes in December; a second is made in March. The latter is more abundant in proportion as the winds have been stronger and more prolonged during the year; that is to say, the branches previously distended by the humidity of the rains have become more thoroughly dried, and crack more deeply and in a greater number of places. The trading in the gum is effected in the months of January and March; the tribe abandoning the forest as soon as the collection is finished, and resorting to the market. In disposing of the gum the Moor shows a considerable amount of avarice, selling it in small portions at a time, and going from ship to ship on the chance of obtaining a better price.

In the time of Adanson, about 1760, the quantity of gum exported from Senegal was nearly 30,000 quintals, or 900,000 kilograms; in 1827, a very bad year for collection, the exportation amounted only to 613,500 kilograms. But since the Moors have taken more precautions for preserving the forests from fire the production of gum has greatly augmented, and in 1868, 2,763,618 kilograms were exported from Senegal. In fact, the amount of 3,000,000 kilograms has frequently been surpassed.

Probably it would be possible, with the aid of the blacks, to create plantations of gum trees in the vast extent of country which forms the centre of the Senegambian triangle. Such a result would have a direct effect on the amount of production, and would tend to prevent the sudden and unexpected rises in the price of gum which every now and then occur.

The vereck (*A. Verek*) produces a hard, black-veined wood, which could be used for ebony work; it is especially a gum-yielding tree, and abounds in Senegambia.—*Pharm. Journ. and Trans., Aug.* 30, 1873.

CAMPHOR.

Perhaps the most common and popular medicinal agent for household use is camphor, a drug which has been regarded as a cure all by mothers, grandmothers and great-grandmothers down through many generations. The "camphor-bottle," holding a solution of the agent in rum or dilute alcohol, is found upon a shelf in almost every dwelling; and if among the younger or older members of the family an ankle is turned, or a limb bruised, or there is head-ache, or tooth-ache, or ear-ache, or belly-ache, down comes the camphor-bottle, and the suffering member is well dosed. Camphor is a powerful agent, and in moderate doses is capable of doing much mischief. It is a matter of wonder that so few instances of injury result, considering its wide spread, empirical employment.

Camphor is brought to this country in a crude or impure state, and here it is subjected to the process of distillation to render it fit for employment. There are several important refineries in the country. A correspondent of *The People* presents the following interesting facts regarding camphor and this refinery:

The camphor of commerce comes from Formosa, Sumatra, Borneo, Japan and China. It is obtained in crystalline masses already formed, and also in grains by distillation. The tree which produces the former kind is a near relative of our basswood, which we know as a charming tree, perfuming the air and yielding the finest honey in the world. It grows on the Diri Mountains in Sumatra, and in Borneo. It towers upward more than a hundred feet, and has been known to attain a girth of fifty feet. The spirited persuasion of the axe draws from this forest monster the white treasures secreted in the longitudinal fissures in its heart wood, sometimes, though rarely, in a layer as large as a man's arm, but more frequently in small fragments to be carefully extracted by some sharp pointed instrument. It is not an abundant bearer. Twenty pounds is a rare yield for a great tree; ten pounds is a good harvest from one of medium size, and many are felled and split that furnish no camphor. This, however, is not an entire waste, since the wood is easily worked and is never attacked by the voracious myriads of Eastern insects which destroy all other varieties except the teak and calambuco. House and ship timber are made from it, besides many articles of furniture, and the aromatic trunk is extremely valuable to the housekeepers of our colder climate. This kind of camphor seldom finds its way to Europe and America.

The Chinese ascribe to it marvellous medicinal properties, and pay for it enormous sums, thereby securing the entire yield.

Common camphor is obtained by distillation from the root, stem and leaves of certain species of *lauraceæ*, but more especially from the *laurus camphora.* Of this, also, there are two varieties. The Chinese or Formosa camphor is carried in junks to Canton and there packed in square chests lined with lead, whence it is sent to the different Eastern ports, where we procure it. It is of a grayish color, with a grain like sugar, and usually unattractive in appearance. The Dutch or Japan camphor is prepared in Batavia, is packed in tubs securely matted, is pinkish in hue, and coarser than the Chinese. Both kinds need purification before using.

Camphor is slightly soluble in water, but yields freely to alcohol, acetic acid, ether, and the essential oils. A pretty experiment may be tried with it, which the young people will find amusing. Scatter a few pieces of clean camphor upon pure water, and they whirl and sail about, keeping up the dance sometimes for hours. Drop among them some greasy matter and the merry little performers will stop on the instant.—*Scientific American, Aug.* 30, 1873.

THE USE OF NUT OIL IN PHARMACY, AND ESPECIALLY IN THE PREPARATION OF UNGUENTUM HYDRARGYRI NITRATIS *

By M. Falieres.

In a brief review of former formulæ for the preparation of citrine ointment, the author calls attention to the large increase which has taken place in the relative proportion of the nitric acid to the mercury. The proportions indicated by Baumé, in 1785, were nitric acid 128 parts, mercury 96 parts, lard 1000 parts. The mercury has been gradually decreased until, in the Codex for 1866, where equal parts (500) of olive oil and lard are ordered, the nitric acid is 100 parts, and the mercury 50. Thus the proportions which originally were 4 of nitric acid (sp. gr. 1·28) and mercury 3, have become nitric acid (sp. gr. 1·42) 2, and mercury 1.† Without blaming the progressive diminution of the metal, since even with this reduction the medicament still remains very powerful, the author objects to the great excess of acid. Suggestions have been made to remove the excess of acid by washing the ointment with a large quantity of water, and then adding an equal weight of almond oil, but have been rejected in consequence of the length and difficulty of the operation, and it being far from certain that the whole of the acid excess would be thus removed.

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* "Bull. des Travaux de la Société de Pharmacie de Bordeaux," vol. xiii, 165.

† In the B. P., where more olive oil is used, the proportions are, nitric acid 3, mercury 1.

The author having had occasion to make a comparative investigation of pure olive oil and the oil of the ground nut (*Arachis hypogœa*), found that the arachis oil possesses a great aptitude for the nitric solidification. Hence he conceived the idea of suppressing entirely the lard in the preparation of nitrate of mercury ointment. The product so obtained seemed to present such marked advantages as to induce him to make known the process:

Mercury,	5	parts.
Nitric Acid (sp. gr. 1·42),	10	"
Nut Oil,	100	"

Dissolve without heat the mercury in the acid; pour the mercurial solution into the oil, agitating from time to time with a glass or earthenware spatula. After two or three hours, according to the quantity operated upon, and at a temperature of about 20° C., the mixture begins to take a milky consistence, which lasts for about an hour, then thickens to that of a soft butter. This latter stage lasts at least two hours, during any portion of which time the ointment may be poured out. The mass spreads with perfect regularity in a paper mould; the thickness of the layer is uniform, and there is no separation between the oily and mercurial elements, showing that the combination is complete. The product does not set so rapidly as the official one; at the end of ten or twelve hours it is easily divided by a wooden knife, but this is more conveniently done after it has stood for twenty-four hours; its consistence is then similar to that of cacao butter in the summer. Two or three days afterwards it appears to attain its maximum of firmness, and some has been kept upwards of two months without showing any appreciable difference in its consistence. Compared with the Codex preparation, the author considers that the ointment made with nut oil has greater cohesion, is not friable, and appears much better adapted for friction, as it melts and spreads upon the skin with greater facility.

M. Falières is of opinion that no serious exception could be taken to the change of fat excipient which he proposes. The progress attained in the manufacture of arachis oil has provided a white, bland, tasteless article, which is, commercially speaking, neutral. Perfumers, who are not, like pharmacists, bound by a formal code, make large use of the ground nut oil in the manufacture of pomades, cold cream, etc. A perfect type of a non-drying oil, it absorbs relatively small quantities of perfume; it requires the least wax, spermaceti, or stearine for its solidification, and finally may be kept almost indefinitely without turning rancid. The author promises at some future time to show in detail the advantages that may be obtained from the use of nut oil in a large number of pharmaceutical preparations.—*Pharm. Journ.* (*Lond.*), *June* 28, 1873.

NOTE ON THE EXHIBITION OF RESIN OF COPAIBA.

By A. W. Gerrard,

Dispenser, and Teacher of Pharmacy, University College Hospital.

The above resin has been recently introduced to the notice of the medical profession by Dr. Samuel Wilks as possessing therapeutic advantages over the balsam, and likewise as being more agreeable for the patient to take. In a letter to the *Lancet* of June the 21st, Dr. Wilks, in reply to numerous inquiries that had been made as to the best method of dispensing it, gave the following formula, which had been recommended by me, and was used in the dispensary of Guy's Hospital:

Take of—

Resin of Copaiba, ...	180 grains.
Rectified Spirit, ...	5 drachms.
Spirit of Chloroform, . . .	1 "
Mucilage of Acacia, ...	2 ounces.
Water to	12 "

Mix according to art.

These ingredients, when mixed in their proper order, form a mixture which, although it contains the resin in a fine state of division, I did not consider altogether satisfactory, as after standing a day or two the resin collects at the bottom of the bottle, forming a semi-compact mass which is shaken apart with difficulty. With the view of overcoming this objection, I made experiments with various other substances and obtained the best result in the following:

Take of—

Resin of Copaiba, ...	15 grains.
Compound Powder of Almonds, . .	30 "
Water to	1 ounce.

Rub the resin with the powder until well incorporated, then add the water after the manner of forming an emulsion.

This forms a cream-colored emulsion of a satisfactory character, having but a faint odor of copaiba. This may be removed by the the addition of compound tincture of lavender, which at the same time imparts an agreeable pink tinge.

The emulsifying power of the powder of almonds is undoubtedly due principally to the fixed oil it contains, which acts as a solvent of the resin; the action is also assisted by the gum and sugar. For the use of hospital dispensers and others who may have frequent occasion to dispense it, it may be kept in a concentrated form, 1 = 4. —*Pharm. Journ. and Trans., July* 26, 1873.

ON THE PRESENCE OF CYANOGEN IN BROMINE.

By T. L. Phipson, Ph.D., F.C.S., &c.

I have lately discovered in bromine issued as pure for pharmaceutical use, a notable amount of cyanogen. It has been known for many years (and I have myself alluded to it in another place) that during the manufacture of iodine a certain quantity of that most beautiful, but dangerous, compound, iodide of cyanogen, sometimes finds its way into one of the glass condensers; and it would appear, from the experiments to which I now allude, that a similar compound with bromine may occur in this liquid element—a more serious case than the other, since it is dissolved and masked in the liquid.

The presence of cyanogen in bromine may be detected in the following manner:—Take an equal weight of iron-filings (say ½ oz.) to that of the bromine, and add to the iron-filings four or five times their weight of water; mix in the bromine very gradually, and stir all the time, filter rapidly while warm from the reaction, place the filtered liquid in a partially closed bottle, and in the course of some hours a deposit of ferricyanide of iron (Berlin blue) will have formed, and may be collected on a filter. In the course of two days (with the above quantity) the whole of the cyanogen is thus eliminated.

In the samples of bromine hitherto examined, I estimate there has been from 0·5 to 1 per cent. of cyanogen in round numbers, and I am rather inclined to believe that this substance is often present in commercial bromine. If perfectly pure bromine be used, the same reaction would enable us to detect cyanogen in steel.—*Chem. News*, Lond., Aug. 1, 1873.

ANALYSIS OF A CURE FOR THE HABITUAL USE OF OPIUM AND MORPHIA.

By E. S. Wayne.

Numerous advertisements from time to time have of late appeared of cures for the habitual use and abuse of opium and morphia. Several of these have come under the notice of the writer, and the remedies found to be in general as bad, if not worse, than the habit itself.

The last that has been brought to me for analysis is the extract of *Picus porteana*, so called, and must say, to me an unknown medicinal agent, and to be found only in the fertile imagination of the proprietor.

The bottle handed to me had upon it the following label and directions:

Bottle No. 1. EXT. PICUS PORTEANA.

Take a Teaspoonful 3 or 4 Times a Day.

PRESCRIBED BY DR. J. C. BECK,
No. 112 John Street, near Fourth,
Ledger, 1873. CINCINNATI, O. Page 178.

You will use the Bottles as they are numbered, using all of No. 1 before opening No. 2, and using all of No. 2 before opening No. 3, and so on. Be careful to follow the directions, and never taking more than ordered; but you take less if you can do so and feel well.

Analysis of the above extract of *Picus porteana* shows that it is merely a strong tincture of opium, slightly disguised in taste and odor by some other substance; and that it contains 8·8 grains of pure morphia in the fluid ounce—equal to about 11·7 grains of sulphate of morphia, and about double the strength of tincture of opium of the U. S. P.

Comment is unnecessary.—*Cincinnati Lancet and Obs'r*, 1873.

THE MEANS OF DETECTING AND ESTIMATING BROMIDE IN IODIDE OF POTASSIUM.*

By Alfred E. Tanner.

It occurred to me that the above subject would be well worthy attention at the present time, for not only are the processes for detecting and estimating bromide in iodide few and imperfect, but it also seems to me a very probable adulterant, inasmuch as there is a great difference in price between these two salts, and the difficulties attending the detection of bromide when mixed with iodide are considerable.

Cl, Br, and I, so resemble one another in their chemical characters and reactions that it becomes a difficulty by no means easily surmounted to distinguish them when in the presence of one another, and this is especially the case with the two latter, and as a sample of KI may contain 75 or more per cent. of KBr and yet be indistinguishable from the pure article when tried by the pharmacopœia tests, it needs little further to point out the desirability of investigating this subject; and before I go further, I must confess that I fear I have accomplished little towards doing away with the difficulties. What we require is a test presenting no great difficulties of application by the ordinary pharmacist, and one which shall indicate with a fair degree of accuracy the object sought to be attained. Of course it is well known to chemists that $PdCl_2$, when added to a neutral solution of an iodide containing bromide, will remove the whole of the I without affecting the Br, but $PdCl_2$ is a rare and most expensive reagent to use, and would scarcely pay the pharmacist who examines usually but small parcels of iodide at a time. This, although I believe to be the most accurate, we must consider out of the question. Recent chemical works tell us that a mixture of $FeSO_4$, two parts, and $CuSO_4$, one part, added to a neutral solution of an iodide, in the presence of bromide and chloride, and the mixture neutralized with NH_3, will remove the whole of the I without affecting the Br or Cl. In my hands, at least, the practice of this process has been attended with only partial success, for I have found it impossible to remove *the whole* of the I; the difficulty therefore remains as great as ever; it is probable, however, that further experiments with this test may yet prove it adequate to the purpose. I rather suspect the Cu_2I_2 to be slightly soluble in the solution from which it is precipitated; we must therefore seek some salt to add to the mixture to prevent this. The following is the reaction stated to occur:—

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* Paper read before the Liverpool Chemists' Association, May 8th, 1873.

$$2\ KI+2\ CuSO_4+2\ FeSO_4=Cu_2I_2+K_2SO_4+Fe_23SO_4.$$

A test proposed by Van Melckebeke (*Journ. Pharm. d'Anvers*, xxviii, 49, 1872) seemed to promise well, and from its great simplicity would have been a valuable one if successful. It depended on the fact that a saturated solution of one salt is capable of dissolving appreciable quantities of another salt. A saturated solution of KBr was therefore used, and to this the sample of KI, in powder, was added in small quantities at a time, when, if pure, it dissolved readily, but if KBr were present, the liquid being already saturated with this salt, it would remain undissolved. Repeated trials with this test have proved to me that it is quite useless. The author recommends you to take 10 c.c. of the saturated KBr solution, and to add to this 10 drops of distilled water; 1 gram of the suspected salt, in powder, is then added, small portions at a time, which, if the iodide be pure, should at once dissolve; but 10 drops of distilled water is quite sufficient to dissolve 5 or more grains of KBr, and if no water be added, some KBr is very liable to be thrown out of solution by the shaking necessary. The next test I tried was one by M. Personne, published in the *Journal de Pharmacie.* It depends on the property possessed by $HgCl_2$ of precipitating a solution of iodide but not one of bromide, bromide of mercury being soluble. It is necessary to the success of this test that the iodide be free from KIO_3, KCl, and K_2CO_3.

I may mention here that KIO_3 is much more frequently present than is generally supposed, and traces of it may generally be detected in the best samples of iodide, and as this salt (KIO_3) is stated on pretty good authority to be of a poisonous nature, it behoves us to be on our guard against it; it is fortunately easy to detect by adding a little starch solution to the iodide to be tested, and then adding a small quantity of tartaric acid; a blue color is developed more or less rapidly, by the liberated iodide acting on the starch, if the KI contain KIO_3, thus:—

$$5\ KI+KIO_3+H_2C_4H_4O_6=K_2C_4H_4O_6+5HI+HIO_3$$

and

$$5\ HI+HIO_3=I_2+3H_2O.$$

1 gram $HgCl_2$ is dissolved to 20 c.c. with distilled water, of this solution 16 c.c. is capable of removing the whole of the I from 1 gram KI. If therefore the KI be mixed with KBr a proportionably less quantity of the mercuric solution will be required.

It is a somewhat curious fact, and one which I have nowhere seen recorded, that when exactly half the mercuric solution is added a permanent precipitate begins to form, and I consider it highly probable that the reaction which takes place is analogous to that which occurs in testing HCN by what is termed Liebig's process, in which a volumetric solution of $AgNO_3$ is added to a weighed quantity of HCN; and when exactly one-half the cyanogen is displaced, and permanent precipitate of AgCN commences to form, a soluble double salt is first formed and shown by the precipitate dissolving as fast as it appears until exactly half the solution has been used; the HCN is first made slightly alkaline with NaHO

$$AgNO_3+2\ NaCN=AgCN,NaCN+NaNO_3$$

and

$$AgCN,\ NaCN+AgNO_3=2\ AgCN+NaNO_3$$

and similarly with KI and $Hg\ Cl_2$

$$HgCl_2+4\ KI=(KI)_2HgI_2+2KCl$$

and

$$(KI)_2Hg_2I_2+HgCl_2=2\ HgI_2+2\ KCl.$$

I prefer to make the formation of a permanent precipitate as the finishing point of the process; it is much more sharply defined than the point at which the precipitate ceases to form. Should it be preferred, however, to make use of this latter (and it is useful as a check on the first part of the process) the best way is to take a glass tube open at both ends, about 15 cm. in length and 5 mm. diameter, and to tie over one end a small piece of filtering paper; on moistening this and depressing the tube into the iodide solution, a few drops may be filtered off and transferred (by inverting the tube) to a porcelain slab and small test glass, and a drop of the mercuric solution added; it will then be instantly apparent whether the reaction is complete or not

I append the result of my experiments with KI containing quantities of KBr.

Percentage of KBr in 1 gm KI.	Precip. commenced.	Precip. ceased.
0	8·0 c.c.	16 0 c.c.
5	7·6 c.c.	15·3 c.c.
10	7·3 c.c.	14·6 c.c.
15	6·8 c.c.	13 6 c.c.
20	6·4 c.c.	12·8 c.c.
25	6·0 c.c.	11·9 c.c
30	5·7 c.c.	11·3 c.c.

1 gram $KI = 81$ gram $HgCl_2$.

In conclusion. I would strongly recommend pharmacists to practice these volumetric processes, for they afford easy means of determining purity in many cases in a few minutes where the ordinary processes take as many hours.—*Pharm. Journ. and Trans.*, Lond. June 28, 1873.

SNAKE POISONS.

Twenty thousand people, it is stated, yearly die, in Hindostan alone, from the effects of the bites of venomous serpents. It is a strange fact that this poison, so deadly and virulent in its effects, may be swallowed with impunity. Its action seems to be the complete paralyzation of the nervous centres through the medium of the blood, in which it spreads through the body with lightning rapidity. Applied to the mucous membrane it causes violent local inflammation; and absorption quickly taking place, the symptoms of general poisoning are soon apparent. The effects of the venom depend, first upon the nature of the snake, the quantity and quality of the poison and the circumstances under which the bite is given; second, on the species, size and vigor of the living creature receiving the wound.

M. Fayrer, professor in the Medical College of Calcutta, has recently published a work on the serpents of India, in which, referring to the action of the virus upon the blood, he says that, though he has been unable to detect any change in the appearance of the corpuscles, yet there is no question but that some alteration takes place. In inferior animals the bites of vipers destroy in the blood the coagulating faculty, while, on the other hand, by the venom of colubrines, coagulation after death is not interrupted. Again, when inoculated by the poison of the cobra, the blood immediately coagulates, but remains liquid if the bite be given by the daboia. Experiments made in this country with the rattlesnake show that the effects of its venom upon the human blood are quite apparent. Dr. Burnett, in a paper read some time ago before the Boston Natural History Society, gives an account of a microscopical examination, during which the smallest quantity of poison, taken from the fangs of a large rattlesnake, was presented to blood freshly drawn from the finger. A change was immediately perceived; the corpuscles ceased to run and pile together, and remained stagnant, without any special alteration of structure, and the whole appearance was as though the vitality of the blood had been suddenly destroyed, exactly as in death from lightning. This agrees, also, with another experiment, performed on a fowl, where the whole mass of the blood appeared quite liquid, having little coagulable power.

Analyses of cobra poison have lately been made by Mr. Henry Armstrong, of London. The matter, extracted from full-grown serpents, was forwarded from India in small vials, and appeared to be a brownish, syrupy liquid; from which, when the vessels were uncorked, a quantity of gas escaped. Examinations were made, first, of the crude substance, second, of the precipitate caused by the addition of alcohol, and finally of the residue obtained by evaporating the filtered spirits, with the following results: The raw poison evaporated with sulphuric acid in *vacuo* deposited a friable mass which contained 43·55 per cent. carbon and 13·43 per cent. nitrogen. The white precipitate dried with sulphuric acid, under similar circumstances, appeared as a pale brown substance, easily pulverized, and leaving, after incineration, a light mineral residuum. It contained 45·3 per cent. carbon and 14·7 per cent. nitrogen, and also 2·5 per cent. of sulphur was determined. The alcoholic solution, similarly evaporated, left a light brown friable mass, composed of 43·04 per cent. carbon, 12·45 per cent. nitrogen, and 7 per cent. hydrogen. It was found impossible to crystallize the poisonous substance, neither water, alcohol, ether, bisulphide of carbon, or any other dissolvent employed leaving the slightest trace of crystals after evaporation. Nitric acid and alcohol determined a coagulum; heat produced the same effect. The salts of copper and potash caused the violet color characteristic of the presence of albuminoid matter.

The liquor, it appeared, resisted decomposition and maintained its activity even after being kept for considorable time, and the characteristics of the poison were noted to be equally powerful in all the three states above mentioned.

M. Fayrer considers that to cobra poison may be ascribed a nature similar to that of vaccine virus, and believes that much may be discovered by extended experiment. He says that viper venom acts directly on the blood and secondarily on the nervous system, and adds that it may be that, by careful and reasonable employment, this powerful poison may be converted into a useful remedy, and that there is nothing to prove why, by extended experiment and study, a complete and prompt antidote may not be found.

From all accounts it appears that the rattlesnake (*crotalus duris-*

simus), indigenous to this country, is endowed with a poison even more virulent than that of the cobra or viper. There is reason for belief that its action is the same upon all living things, vegetables as well as animals. It is even fatal to the snake itself; and we find it stated that, on being irritated while confined in a cage, the animal has been known, in moving suddenly, to strike its own body, and to die from the wound as quickly as would any other creature. A remarkable physiological fact is here presented of a liquid, secreted directly from the blood, which proves deadly when introduced into the very source from which it was derived. Serpent poison acting as a powerful sedative, active stimulants are probably the best antidotes. Hence, in parts of the United States infested with venomous reptiles, it is the practice to administer large drafts of whisky, or to chew and swallow tobacco. The liquor stimulates the nervous system until the depressing effect of the poison is overcome by natural curative action. Tincture of iodine externally applied and administered by hypodermic injection into the cellular tissue near the wound is said to be of considerable efficacy, and in advanced cases chloride or iodide of potassium, largely diluted with water, is given in addition. Sucking the wound immediately after being struck often delays the spread of the poison. The negroes in the South favor an odd remedy, which consists in killing a chicken, splitting it in the back, and bending the warm flesh directly over the bite. They believe that the poison attacks the fowl in preference to transfusing itself through the human body. The Mexicans and Indians use a plant which they call *golondrinera*, which Dr. Torrey on examination pronounced a species of *Euphorbium.* Botanically it is known as *E. prostrota;* and we find it described as a plant of frail, delicate appearance, somewhat like the gold thread, and having long, reddish stems that spread and interlace with each other. Its flowers, which appear from April to November, are very small and white, with dark purple throats. They are axillary, and have four petals and four sepals. All parts of the plant contain an abundance of milky juice in which the medicinal properties reside, and which is extracted by bruising the portions in a mortar. A considerable quantity of water is added and several ounces of the mixture administered to the injured person. The plant grows plentifully in dry gravelly places, by roadsides and in farm-yards. The remedy, which acts as an emetic and cathartic, is said never to fail in a cure and to be attended with no danger in its administration.—*Scientific American, July* 19, 1873.

Varieties.

A Monument to Liebig.—The following circular has been issued at Berlin:

COMMITTEE FOR ERECTION OF A LIEBIG MEMORIAL.

Bureau, No. 10 Dorothea St., Berlin.
BERLIN, *April* 29, 1873.

HONORED SIR.—In its session of April 28th, the directors of the German Chemical Society unanimously decided to honor the memory of Justus Von Liebig by the erection of a statue either in Darmstadt, Giessen, or Munich.

A committee, consisting of the undersigned, was empowered to take the necessary steps to carry out this decision.

In making known to you this decision of the directors of the German Chemical Society, we hasten to inquire of you whether you are disposed to become a member of the general committee for the erection of a Liebig Memorial.

In case of an affirmative answer, which we earnestly request, we will have the honor to send to you, in a few days, the call to be signed.

The Committee.—A. W. Hoffmann, C. A. Martius, C. Scheibler.

This call has since been issued and a large committee appointed, the members residing in different countries.

Australian Soluble Gums.—The number of arborescent species of Acacia furnishing gum is not inconsiderable. The species indigenous to Australia are of greater celerity of growth than the African gum Acacias. Gum a good deal resembling Arabic is obtained from *Acacia harpophylla*, Ferd. Mueller; *A. Bidwillii*, Bentham; *A. pycnantha*, Bentham; *A. decurrens*, Willdenow; and *A. homalophylla*, Cuming. It has been exported for cotton printing, adhesive purposes, and other applications. The supply can be rendered abundant.—*Journ. Appl. Science, Sept.* 1, 1873.

Indian Opium.—The poppy being exclusively grown for the Supreme Government of India in Benares and Behar, the permission of the Lieutenant-Governor of Bengal has been sought and obtained on the subject of improving its cultivation. The opium manufactured in the Himalayas contains 50 per cent. more morphia than that of the plains of India. This fact was placed on record in the "Journal of the Agri-Horticultural Society of India."—*Pharm. Journ.* (*Lond.*), *July* 12, 1873.

Manna, etc., from Palermo.—From the consular reports we find that the shipments of manna from Palermo were 1345 cwt., valued at £5189, in 1870, and 2530 cwt., valued at £14,642, in 1871. Most of this goes to France. The trade in essences and essential oils also shows a large increase, having risen from 8890 lbs., valued at £1252, in 1870, to 49,800 lbs., valued at £6620, in 1871. There are five manufactories of concentrated lemon juice and essences in that city, which turn out 400 pipes annually.—*Ibid.*

Cod-Liver Oil Mixture.—A preparation that has met with much favor, under the above name, has been made by the writer from a formula given him by Mr. Hassard, of Philadelphia. It is made as follows: ℞. Fresh eggs, No iv; lemon juice, q. s. Place the eggs in a suitable vessel, and pour over them sufficient lemon juice to cover them, and let the whole remain for 24 or 48 hours. Then pass the whole through a strainer, and add, with agitation, the following, and in the order given: To the lemon juice and eggs add an equal volume of honey, cod-liver oil, and brandy or whisky. The whole forms a permanent emulsion, and will keep good during the summer months for a month, and longer in cooler weather. The taste of the oil can be completely covered by the addition of a few drops of oil of wintergreen, or oil of bitter almonds. This mixture is pleasant to take, and a valuable therapeutic agent.

P. S.—Glycerin may be substituted for the honey. E. S. W.

—*Cincinnati Lancet and Observer, Sept.*, 1873.

New and Rapid Process for Generating Sulphuretted Hydrogen.—W. Skey (*Chemical News*) describes a method which is said to be simple, expeditious and economical, and which has been used by the author for over two years, giving entire satisfaction: Fragments of galena and granulated zinc, in proportions of about 1 to 1, are well mixed and put into a small apparatus of the kind generally in use for the preparation of this gas, and hydrochloric acid diluted with water (1 to 20 or so) poured upon them. Sulphuretted hydrogen is instantly given off, and its evolution is found to proceed energetically, regularly and continuously for a great length of time—a length proportionate to that of the quantity of material used and its proper adjustment as to parts. A little hydrogen accompanies the gas named, and traces of hydrochloric acid. The acid is, however, easily removed by allowing it to pass through a little carbonate of lime before use, while the presence of hydrogen can have no bad effect for all ordinary purposes. After a sufficiency of the gas has been used it is best, in ordinary cases, simply to wash the galena and zinc with water, when the apparatus is ready for further use at a moment's notice; but when quantities are required in rapid succession a form of apparatus may be used which allows the separation of the acid liquid from the undecomposed substances within itself, when the delivery tube is closed.—*Canad. Pharm. Jour.*, 1873, *July.*

How does the Color of Flowers Vary?—An amateur, M. Hueghe, had some primroses which he transplanted into a better soil, and the result was that from yellow the flowers became an intense purple. By a similar modification, and by mingling with the soil certain substances, one may vary the color of plants. Charcoal deepens the tints of dahlias, hyacinths and petunias; carbonate reddens hyacinths; and the phosphate of sodium changes in various ways the hues of some plants. It is known that a heathery soil makes the green hydrangea red.—*Journ. Applied Chem., September*, 1873.

Certain Constituents of Poplar Buds.—J. Piccard.—Along with chrysin the author has come upon three other bodies—the ethereal oil of poplar C_5H_8; a mixture of salicin, populin and tectochrysin, $C_{16}H_{12}O_4$, a higher homologue of chrysin.—*Chem. News, Aug.* 22, 1873.

Loss of Drugs in Powdering.—The following is copied from a circular of the Philadelphia Drug Exchange issued in June last:

The following table, showing the average losses in weight, in powdering, will probably be found interesting and useful for reference.

It exhibits the results from a number of trials of each article covering a period of several years, and was prepared at one of the drug mills of this city. These losses, as will readily be understood, vary as the dryness of the article varies—

	Per cent.
Acid, Tartaric,	¾ to 1
Aconite Root	2 to 5
Allspice	1½
Aloes, Cape,	6 to 7½
Socotrine,	8 to 10
Alum	½ to 1
Argols, Red,	2 to 3
White,	¼ to ¾ of 1
Assafœtida	9 to 11
Barberry Bark	3
Bayberry Bark	4
Bean of St. Ignatius	1 to 3
Benzoin	1
Black Lead	¼ to ¾ of 1
Bloodroot	3 to 4
Blue Vitriol	2
Bole, Armenian	1
Borax	¾ of 1
Buchu	3 to 4
Butternut Bark	3½
Calisaya Bark	3 to 5
Canella Alba Bark	3
Cantharides, powdered,	2 to 3
Capsicum	7 to 9
Cassia	3
Castile Soap	23 to 25
Cloves	3
Cochineal	½ to 1
Colocynth Apple, powdered,	4 to 5½
Copperas, when dried,	7
Corrosive Sublimate	1¼
Cream of Tartar	¼ to ¾ of 1
Cubebs	1½
Elm Bark	3 to 4
Ergot	2 to 3
Euphorbium	½ to 1
Fenugreek	3 to 3½
Flaxseed	1 to 2
Gamboge	3 to 4
Gentian Root	6 to 13
Ginger, African,	3
Jamaica,	3
Gum Arabic	4
Indigo	2
Ipecacuanha	3 to 4
Jalap	9 to 10
Lac Dye	2
Liquorice Root	
chipped and bruised	3 to 4
powdered	10 to 12
Liquorice, stick,	10
Mace	1
Mandrake	4 to 5
Manganese, Black Oxide,	1½
Mustard	6 to 7
Myrrh	8 to 10
Nut Galls	4
Nux Vomica	4 to 5
Opium	18
Orange Peel	3 to 5
Orris Root, powdered,	6 to 8
Pepper, Black,	2½
Poplar Bark	1
Potassa Prussiate	1½
Prickly Ash Bark	1 to 2
Pumice Stone	2½
Rhubarb, powdered,	3 to 4
Sal Ammoniac	1
Sarsaparilla,	
chipped and bruised,	4 to 5
finely ground	10 to 13
Scammony	4 to 5
Senna	3 to 4
Shellac	2 to 3
Snakeroot, Black	3 to 4
Squills	3 to 5
Sulphur	1½
Valerian	3 to 5
Vanilla Beans	4 to 5
Wild Cherry Bark	3 to 5

Food for Invalids.—John Goodman, M. D., of Southport, prepares what he calls "artificial fibrin" as a nutritious food for invalids, especially when the stomach rejects other food. He thus describes its preparation. It is formed by exposing albuminous material to the operation or influence of cold water for a given time, and, on account of its great plenteousness, we employ the ordinary hen's egg for its production. When the shell is broken and removed, and its contents are immersed in cold water for some twelve hours or so, it is found to undergo a chemical molecular change, and to become solid and insoluble. The egg, and fluid in which it is immersed, is now heated to boiling, when the fibrin will be found ready for use.—*Journ. Applied Chem.*, July, 1873.

Anti-Neuralgic Snuff.—The *Rivista Clinica di Bologna* mentions an anti-neuralgic snuff prescribed with success in cases of facial neuralgia, by Dr. Scriffignano. The base of the snuff is quinine, and its composition as follows: Citrate of quinine, ten grains; very strong exciting snuff (tobacco), fifteen grains. The medicament is said to act almost directly on the diseased nerve through the ethmoidal thread of the nasal ramus of Willis's ophthalmic, a branch of the fifth pair.—*Philada. Med. Times, Aug.* 9, 1873, from *London Lancet.*

Gilding Iron.—Soduim amalgam is said to be advantageous as a means of simplifying the method of dry gilding iron, and for painting gold designs thereon. By simply rubbing with the amalgam, the surfaces of iron and similar metals, although oxidized, are at once amalgamated. Some solution of chloride of gold is then applied quickly on the amalgamated surface, and the mercury volatilized by the heat of a lamp or fire. A very uniform gilding is thus obtained, admitting of high polish. With silver and platinum salts similar results are obtained.—*Jour Franklin Institute, Sept*, 1873.

Determination of Chloral.—V. Meyer and H. Haffter.—The authors remark that chloral hydrate is often found very impure, whence a simple and accurate method for its quantitative examination becomes needful. With aqueous solutions of alkalies chloral hydrate is completely resolved into chloroform and alkaline formiate according to the equation, $C_2\,Cl_3\,H_3\,O_2 + Na\,O\,H = C\,H\,Cl_3 + H\,C\,O_2\,Na + H_2\,O$. 1 equivalent of chloral hydrate neutralizes 1 equivalent of soda, or 165·5 grms. of the former require 1000 c c. of normal solution of soda. If, therefore, a weighed amount of the sample under examination is mixed with a known excess of normal soda solution, and the remaining excess of soda is determined by titration with standard acid, the soda consumed and the corresponding amount of pure chloral hydrate are found by the equation—

$$x = \frac{(a-b)\ 165{\cdot}5}{1000}\ \text{grm.}$$

a denoting the number of c c. of normal soda consumed, and *b* the c.c. of normal acid used for titration. If free hydrochloric acid is present as an impurity, it is neutralised by shaking up the aqueous solution with pure carbonate of lime, and expelling the free carbonic acid by prolonged agitation in the measuring cylinder.—*Chem. News* (*Lond.*). *June* 27, 1873.

On Crystalline Protiodide of Mercury.—P. Yvon.—This compound is best obtained by heating mercury and iodine in equivalent proportions, in sealed flasks, upon the sand bath. The temperature must not be allowed to exceed 250°. The upper portion of the flask will be found lined with crystals of a fine red, which become yellow on cooling. On re-heating, the red color begins to return at 70°, and at 220° a splendid garnet shade is attained. This is exactly the inverse of the phenomena presented, under similar circumstances, by the biniodide. The crystals of protiodide melt at 290° to a black liquid, which boils at 310°. If more rapidly heated it is decomposed, yielding mercury and a light yellow sublimate, which is not, as might be expected, a compound richer in iodine, but an oxy iodide which may be represented by the formula, $Hg_{13} O_6 I_7 = 6\ Hg\,O, 7\ Hg\,I$. This oxy-iodide is at first bright yellow and crystalline, but, especially if exposed to the light, it soon becomes first orange and then brick red, and falls to a powder.—*Chem. News, July 25, from Compt. Rend.*

Erythrophenic Acid, a New Reaction of Phenol and Aniline.—E. Jacquemin.—When phenol is treated with chlorine-water, no reaction is observed, and ammonia added to the mixture subsequently develops no coloration. It is known that aniline, on the contrary, suspended in water, with the addition of a solution of chlorine, takes a rose color, which rapidly becomes purple, violet, and, lastly, brownish-red, and that ammonia added at this last juncture increases the brownness. It is no longer the same when a mixture of a drop of phenol and a drop of aniline is submitted to the action of solution of chlorine. A permanent rose red is obtained, which may be turned to a blue either by ammonia or by the alkalies or alkaline carbonates. Acids restore the original redness. The author concludes that there exists a phenate of phenylamin; that the new body produced in the above reaction is a red acid, forming blue salts; the erythrophenate of soda may be produced by causing hypochlorite of soda to act upon the mixture of phenol and aniline. The blue thus formed is remarkable for its purity and extraordinary tinctorial power. If two drops of the mixture of phenol and aniline be added to 2 litres of water, and then treated with hypochlorite, the blue in an hour or two becomes so intense that it could be recognized even in 4 litres of water. This reaction may be useful in toxicological researches either for aniline or phenol. The purity and permanence of the blue might render it fit for the uses of the dyer, but it will not bear steaming. The extreme facility with which it is reddened by the feeblest acids is likewise an objection. In this respect it far exceeds litmus.—*Chem. News, July 25, from Bull. Soc. Chim. de Paris.*

Pharmaceutical Colleges and Associations.

The Colleges of Pharmacy in the United States commence their regular courses with the beginning of October, except the California College, which, as we stated in our last issue, opened its first course in July last. As far as we can learn, there appear to be good prospects for full classes in all the colleges, and it is to be hoped that with the beginning of the cooler season new energy may be infused, not only into the students who come to listen to the teachings of their professors, but likewise into those who are considered members of the pharmaceutical profession.

In many of the colleges pharmaceutical meetings will be inaugurated again during the present month, and, if the pharmacists know and appreciate the duty they owe to the profession, they will not fail to bring forward, for the benefit of all, such notes, observations and investigations, as they may have been enabled to make during the past six months, or may make during the season before us.

British Pharmaceutical Conference.—The annual meeting was held at Bradford, September 16th simultaneously with the meetings of two other national pharmaceutical societies, that of Austria and North America.

The Austrian Pharmaceutical Association held a meeting July 7th, at which Dr. A. Hottot showed his pepsin exhibited at the Vienna Universal Exposition. This pepsin is prepared as follows: Hogs' stomachs are macerated in water, the liquid is filtered, the filtrate precipitated by acetate of lead, the washed precipitate decomposed by sulphuretted hydrogen, and the filtrate, after concentration, precipitated by sulphate of sodium. After having been repeatedly washed with water, pepsin is in small shining scales, of yellowish-grey color, almost inodorous, not hygroscopic, and insoluble in water. If one centigram of this pepsin is digested for one hour, at a temperature of 45° C. (113° F.), together with 30 grams of water, 45 centigrams muriatic acid, spec. grav. 1·18, and 6 grams of fibrin the latter is dissolved and after 12 hours completely transformed into albuminose, and the liquid yields no precipitate either on boiling or by nitric acid. The same effect is produced, under the same circumstances, using, however, six centigrams of pepsin, upon six grams of recently coagulated albumen.

Mr. E. Delpeches exhibited various preparations of Eucalyptus.

Mr. S. Limousin demonstrated the preparation of oxygen with an apparatus constructed by him, and consisting of a cast-iron retort composed of two hermetically fitting hemispheres. By the heat of a spirit lamp the gas is evolved from a mixture of chlorate of potassium and binoxide of manganese, the gas is washed by passing it through very dilute solution of potassa, and collected in rubber bags. Oxygen gas has been employed lately in cholera hospitals.

Mr. E. Genevois spoke about different blistering plasters.

The annual meeting of this Society was held at Vienna, September 15th and 16th.

The German Apothecaries' Union held its annual meeting at the City of Cologne, September 4th and 5th.

Editorial Department.

Bogus Diplomas.—There appears to be a chance for this swindle to be legally checked at last. If we look at the facts that were unearthed about eighteen months ago (see Amer. Journ. Phar., 1872, 139) by a committee of the Pennsylvania Legislature, it appears strange that the proper prosecuting authorities should have required additional "official" information to institute legal proceedings against a concern which has extensively advertised its diplomas *in absentia*, and the foreign headquarters of which are at 46 King street, Jersey, England, while the home manufactory is located in the City of Philadelphia. At the meeting of the City Councils, held September 9th, a message was presented from Mayor Stokley, in which it was stated that the Consul of Spain had officially brought to his notice the fact that medical diplomas were issued by an institution in this city, styled the "American University of Philadelphia," in a manner apparently illegal and to persons unqualified to receive them. The Mayor recommended the passage of a resolution requesting the Attorney General to sue out a writ of *quo warranto* to test the question and put a stop to the proceeding.

In conformity with this request, a resolution was passed and approved, requesting the Attorney General of the Commonwealth to sue out a writ of *quo warranto* to inquire into the legality of the medical diplomas issued by the institution known as the "American University of Philadelphia."

Attorney General S. E. Dimmick will apply for the writ at the meeting of the Supreme Court in Pittsburg, October 6th.

"What is Cincho quinine?"—Under this caption an article has been published lately in many medical journals, laudatory of a preparation which has been chemically examined by W. T. Wenzell, of San Francisco, whose results were published in the April number, 1870, of the "Pacific Medical and Surgical Journal" and copied into the July number, 1870, of this journal. For the benefit of our cotemporaries we again copy here the concluding paragraphs of Mr. Wenzell's paper, which will furnish an answer to the above, or rather to the query. *What was cincho-quinine in March*, 1870?

> "Cincho-Quinine," although having the advantage of being nearly tasteless, does not contain quinia, quinidia, and cinchonidia, and therefore does not represent the whole of the active principles of the bark.
>
> It cannot exert the full effects of sulphate of quinia in the same dose, inasmuch as the stated dose of "Cincho-Quinine" is from five to thirty grains.
>
> Although "Cincho-Quinine" appears to cost less than sulphate of quinia, it does not follow that commercial "Cinchonia," sold at four times its value, is a desirable substitute for quinine in an economical point of view.
>
> And, lastly, one very important principle should by no means be lost sight of, namely: that a physician should always know what he is prescribing, and therefore the substitution of a remedy of less efficiency and uncertain medicinal value, is altogether unwarrantable and often hazardous.

The Excursions to and from the Richmond Meeting of the American Pharmaceutical Association were participated in by a larger number of members than those to any previous meeting. The excursion party, which left Cincinnati on Saturday, September 13th, was unfortunately detained upon the Ohio river by low water, and could not, for this reason, make the railroad connections in time to carry out the original programme of spending Sunday at White Sulphur Springs and reach Richmond Monday evening. The excursions arranged for the Eastern members were more successful, although ten or twelve failed to join the main party, having been detained in Long Island Sound by foggy weather. The steamer George Leary, which left Baltimore for Norfolk on the afternoon of Saturday, September 13th, carried a party of fifty-five ladies and gentlemen, who received every attention by the officers of the Bay Line steamers, as they proceeded down the Chesapeake Bay, and early on Sunday morning passed Fortress Monroe and up Hampton Roads to Portsmouth and Norfolk, in which latter city they were to await the arrival of the steamer from New York. On Sunday afternoon the officers of the Bay Line steamers placed a tug-boat at the disposal of the party, and various points of interest in the neighborhood were visited, among them the celebrated Gosport navy yard. Soon after the party had landed again at the wharves of the Bay Line steamers the "Old Dominion" neared her landing-place, carrying a party of forty-nine ladies and gentlemen, bound for Richmond, to attend the meeting. Owing to an accident to the machinery of the James River steamer, which was to take the party coming from Baltimore to Richmond, the passengers were transferred to the Old Dominion, which vessel proceeded again, early on Monday, upon her voyage up the James River, passing numerous points of interest in the history of the State of Viginia, as well as of national importance.

It was shortly before dusk, a few miles below, but in full sight of the City of Richmond, when the Old Dominion was met by two barges, with a portion of the Committee of Reception of the Richmond pharmacists and druggists, headed by the Chairman, Mr. T. Roberts Baker. The barges landed the combined pary at Rocketts, where omnibuses and carriages were in waiting to convey them to the "Exchange Hotel and Ballard House," which establishment had been selected as the headquarters of the members during their stay in Richmond.

With unbounded liberality, the friends of the Association had placed carriages at the disposal of the members and their families during their stay in Richmond, and members of the Reception Committee were constantly in attendance to point out the historical and most beautiful localities in and around the city, and to accompany the ladies and members as guides.

On Thursday afternoon, the members of the Association and the exhibitors at the meeting, with their ladies, by invitation of the Richmond druggists, embarked at Rocketts upon the barge Greenbush, to which were attached the steam-tugs Frank Somers and W. P. Craighill, which were handsomely decorated with the colors of the United States and of other nations. Nearly every pharmaceutical establishment of the city was represented on board. His Honor, Mayor Keiley, the Faculty of Virginia Medical College, and a number of prominent physicians and citizens were present, and accompanied the party upon the excursion down the James River. Powhatan, Drury's Bluff, Chaffin's Bluff and many other historic places, made famous during the early and more recent history of Virginia, were pointed out, and many incidents in connection therewith related. The boats passed through the Dutch Gap Canal, then turned in the river, and again proceeded back towards the city. Mayor Keiley being called upon for a speech, addressed the company, recalling some incidents of the war, and congratulating those present, representing most of the States and all the sections of the reunited Union, upon the happy occasion which brought them together. In language of elegance and eloquence he alluded to the old flag, and the men of Massachusetts and Virginia now again working together in fraternal accord for the good of the whole country. Speeches were also made by Mr. James Slade, of Boston; Dr. C. A. Tufts, of Dover, N. H.; Prof. G. F H. Markoe, of Boston; Rev. Dr. C. C. Bitting, and Prof. J. B. McCaw, of Richmond; Messrs. J. F. Hancock, of Baltimore; H. A. Vogelbach and J. M. Maisch, of Philadelphia. In the course of his remarks, Mr. Vogelbach read a series of resolutions passed by the party that came to Richmond via Baltimore, by the steamer George Leary, returning thanks to the officers of the Bay Line for kindnesses bestowed upon them, and to Mr. Hancock for the preparations made by him to ensure a pleasant voyage. The trip was enlivened by music from the First Regiment band, and by singing by a quartette of Richmond amateurs. A handsome collation was served, and the excursion terminated pleasantly in every respect at about 8½ o'clock, when the boats reached Rocketts again, to land the delighted excursionists.

For the same evening a hop had been arranged in the ball room of the hotel, and a number of couples amused themselves by dancing to the music of a good string band.

After the final adjournment of the meeting, on Friday noon, quite a number of members visited Petersburg, with its remaining fortifications, and in the evening many left, northward bound, to visit on Saturday the public institutions of the National Capital, while most of the Western members travelled homeward, with the intention of spending a day or two at White Sulphur Springs, a pleasure of which they had been deprived on their eastward trip by the failure of making timely connection with the train at Huntington, W. Va.

Nearly the whole of the remaining members left Richmond in the early train on Saturday morning, paid a visit to Mt. Vernon, and reached Washington, D. C., by the steamer Arrow, at about five o'clock P. M.

Thus ended one of the most pleasant reunions of the American Pharmaceutical Association, at which the members and their families were the recipients of old Virginia hospitality, so renowned throughout the country. Arriving in the City of the Seven Hills almost entire strangers, the unbounded cordiality, the open-hearted liberality, and the fraternal welcome of its pharmacists, druggists and citizens in general soon made every one feel at home, and the remembrance of the week so pleasantly spent on the beautiful banks of the James River will not soon be effaced from the memory of those who attended that meeting, at which the Association—as Mayor Keiley pleasantly remarked—attained its majority, and celebrated its twenty-first birth-day.

The Fourth Convention of the Teaching Colleges of Pharmacy assembled at the Exchange Hotel, in the City of Richmond, Va., on the evening of September 17th. Delegates were present from the Massachusetts, New York, Philadelphia, Maryland, National (at Washington, D. C.), Cincinnati, Chicago, Louisville and Tennessee Colleges. Dr. C. A. Tufts was re-elected President and J. M. Maisch Secretary of the convention. After arranging some financial matters, the subject of examination of the students preceding their admission to the colleges was discussed at considerable length. The large majority of the delegates and of the colleges represented favored the views of the convention of 1870, and the subject was laid on the table.

A proposition for the adoption of an uniform code of ethics by the convention of teaching colleges was discussed and, before final action was had, withdrawn. During a discussion on the requirements for graduation it was observed that all the colleges of pharmacy require sufficient experience in a retail store and behind the prescription counter, and bestow their diplomas only after the applicants have served four years in the business, attended two full courses of lectures, and passed a satisfactory examination.

A second session was held on the evening of September 18th, during which pharmaceutical titles were the subject of discussion. A proposition to have the records of the various conferences published and distributed among the colleges was referred to the various colleges for action, the delegates to report at the next convention, to be held at Louisville.

THE EXPOSITION OF OBJECTS RELATING TO PHARMACY at the Richmond meeting was a very creditable and interesting one, and was visited not only by the pharmacists present at the meeting, but also by the members of the medical profession and by many citizens, particularly on the evening of September 17th, when the public had been specially invited.

Collections of *chemicals* were exhibited by Powers & Weightman, Rosengarten & Sons, Chas. T. White & Co., J. Creuse, and others; *crude drugs* by B. O. & G. C. Wilson (pressed medicinal herbs, flowers, &c.), Wallace Bros. & Stevenson, of Statesville, N. C. (fresh medicinal plants, roots, barks, leaves, &c.), McKesson & Robbins, Lazell Marsh & Gardiner, Dr. Squibb, H. T. Frueauff, of Columbia, Pa. (Glitsch's Russian Mustard), and others; *pharmaceutical preparations*, of various kinds, by Hance Bros. & White, Bullock & Crenshaw, W. R. Warner & Co., Sharp & Dohme, McKesson & Robbins, W. H. Underdonk, O. Neustadt & Co., and others. Mr. Ira Blunt exhibited Valentine's meat juice, containing albumen in solution, and Sherwood's patent bottle-filler; Thomas H. Hazard, extract of meat; E. F. Houghton & Co., cosmolin, and various ointments prepared with it; Keasby & Mattison, granular effervescent salts; Dr. E. R. Squibb, physicians' pocket-cases and an apparatus-stand of his construction; McKesson & Robbins, Neynaber's patent pharmaceutical steam apparatus; John W. Shedden, dyspeptic flour, and water from the Massena springs, N. Y.; Janentzky & Co., water and oil colors, hair pencils, &c.; Waters & Ricksecker, druggists' sundries; W. B. Burk & Co., corks, sponges, &c.; Oscar G. Cosby, model of an invalid bed; J. B. Lippincott & Co., Cooley's Hand-book of Compound Medicines; Hand-book of Perfumes, Cosmetics and other Toilet Articles; U. S. Pharmacopœia; the American Pharmaceutical Association, Report of Columbia Hospital for Women, and Medical and Surgical History of the War of the Rebellion, presented by the Departments in Washington; Whitall Tatum & Co., glassware of various kinds; Dr. W. H. Pile, hydrometers of his own make. Wines and brandies were exhibited by Eberhardt, Lachman & Co., and by Good, Roof & Co.

THE

AMERICAN JOURNAL OF PHARMACY.

NOVEMBER, 1873.

EXTRACTUM IPECACUANHA FLUIDUM.

By Richard V. Mattison.

Read at the Pharmaceutical Meeting, October 21.

The preparation of this extract is attended with some difficulty, and seems to have been a source of annoyance to our Pharmacopœia authorities. The last selection (U. S. P., 1870) is unfortunate in furnishing a product very thick and inelegant, though no doubt fully representing all the medical properties of the root.

When this extract is prepared according to the present formula, and diluted with syrup, as the Pharmacopœia directs, the result is a turbid syrup—the abhorrence alike of patients, physicians and pharmacists.

This proving very unsatisfactory in these days of elegant pharmacy, I, in accordance with the suggestions of Prof. J. M. Maisch, instituted a series of experiments, which resulted in the selection of the following formula:

Take eighty troy-ounces of carefully selected ipecac root, grind to appropriate powder, and, after moistening thoroughly, pack firmly in a cylindrical glass percolator, allow to stand four days as directed, then using the officinal menstruum, allow percolation to proceed slowly until the root is exhausted. To the percolate add ten fluid-ounces of glycerin, and evaporate at a temperature not exceeding 140° Fahr. (if the temperature is allowed to rise higher, a gelatinous mass will result) until reduced to the measure of fifty-five fluid-ounces. Transfer this to a moistened filter and allow to drain. To the soft mass remaining upon the filter, consisting of the peculiar substance usually called resin (though not so, properly speaking), water is added by means of a spritz, and the whole thoroughly washed until the filtrate measures sixty fluid-ounces. This causes a reprecipitation of the resinous substance, which necessitates the refiltration of the filtrate. To this second filtrate twenty fluid-ounces of glycerin is added, and the whole well mixed.

This furnishes an extract containing in each pint two fluid-ounces less of glycerin than the officinal preparation, limpid, perfectly transparent, and one that can be mixed with syrup without turbidity, and in this respect will, I doubt not, meet the approval of all lovers of elegant pharmacy.

Philadelphia, Tenth month 10th, 1873.

EXTRACTUM AURANTII CORTICIS FLUIDUM.

By Munroe Bond.

Among the numerous fluid extracts admitted in the last edition of the Pharmacopœia are many which are scarcely if ever made use of, and rarely called for; while there are some, though not officinal, which are very frequently employed.

Amongst the last-named class there is none not officinal which is more universally used by the pharmaceutist of to-day than a fluid extract of sweet orange peel.

Owing to the highly aromatic and somewhat tonic properties which the rind of sweet orange possesses, it is extensively used as an ingredient in the multiform tonics and elixirs which are in vogue and so popular at the present time.

I have never, as yet, seen any formula published for its preparation, and being called upon quite often to prepare it, I have used various different methods with a view to ascertain the best way and most appropriate menstruum.

Having obtained a formula which furnishes a very satisfactory preparation, and which I consider a "desideratum," I present it to the readers of the *Journal of Pharmacy.*

Take of—

Sweet orange peel in moderately fine powder, .	℥ xvi.
Glycerin, ...	fl. oz. iij.
Alcohol,	
Water, each a sufficient quantity.	

Mix fourteen fluid-ounces of alcohol with two fluid-ounces of glycerin;

moisten the orange peel thoroughly with twelve fluid-ounces of the mixture in a large wedgewood mortar, or any convenient vessel, and having covered it carefully, let it stand for twelve hours; then pack moderately firm in a suitable percolator, and proceed as directed in the officinal directions for preparing fluid extracts. Finish the percolation with a mixture of two parts of alcohol and one part of water; reserving the first fourteen fluid-ounces, add one fluid-ounce of glycerin to the remainder, carefully evaporate to two fluid ounces and mix with the reserved portion.

Fluid extract of orange prepared in this manner has a heavy rich appearance, is permanent, and possesses all the aroma of the orange peel, if a fresh and good article of the drug has been employed.

One fluid-ounce added to fifteen fluid-ounces of simple syrup makes a stronger and better "Syrupus Aurantii Corticis" than the officinal. The resulting syrup is entirely destitute of any opaqueness, and its mode of preparation less troublesome than by the present formula, which is somewhat tedious.

Four fluidrachms of the fluid extract and a few drops of solution of citric acid mixed with one pint of syrup, make a syrup unsurpassed in delicacy of flavor and unfermentable for use at the mineral water counter.

Philadelphia, Sept. 20th, 1873.

BITTER WINE OF IRON.

By Chas. L. Mitchell.

This preparation, so much in demand amongst practitioners at the present time, is, when rightly made, a most elegant tonic and stimulant. As often sold, however, it is of an inky color and taste, and quite repulsive to the patient. Taking advantage of the property which the hydrated sesquioxide of iron possesses, of removing the tannic acid from the different vegetable astringents and tonics, I have succeeded in making a preparation which is handsome, efficient, and pleasant to the taste. The formula is as follows:

Grd. Cinchona Calisaya, . . .	192 grs.
" Gentian Root, . . .	128 "
Soluble Citrate Iron, . . .	192 "
Sherry Wine, . . .	13 f. ozs.
Brandy, ...	1 "

Alcohol,	1 fl. oz.
Oil Orange,	12 minims.
Sugar,	2 ozs.
Solution Tersulphate of Iron,	2 f. ozs.
Water of Ammonia,	q. s.

Dissolve the oil of orange in the alcohol, and mix with the sherry wine and brandy. With this menstruum percolate the ground drugs, recovering 15 f. ozs. tincture by pouring on water. Dilute the iron solution with twice its bulk of water, and add ammonia until in slight excess. Wash the precipitate until the washings are tasteless, and drain thoroughly. Mix this precipitate with the percolated tincture, and allow to stand, shaking frequently, until a portion filtered off has a light yellow color and does not blacken with tincture of chloride of iron. Then filter, dissolve the citrate of iron and the sugar, and bring up the measure with a little water to 16 f. ozs.

Each fluidounce contains 12 grs. cinchona calisaya, 8 grs. gentian root, and 12 grs. of soluble citrate iron.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Test for Solania and Solanidia.—Equal volumes of concentrated sulphuric acid and alcohol are mixed; a trace of solania added to the warm mixture produces a rose-red, larger quantities a cherry-red color, which disappears after five or six hours, and the intensity of which is not affected by the presence of even large quantities of morphia. O. Bach regards this as very important, since in following Stas' process, morphia and solania are the only alkaloids which are not taken up by ether from alkaline or acid solutions. The solution of much solania in concentrated nitric acid is yellowish, and separates after ten hours colorless floccules, without acquiring a blue color.—*Journ. f. Prakt. Chem.*, 1873, 248.

Note on the Nessler Test.—J. Alfred Wanklyn.—In the course of the various controversies relating to the water process frequent mention bas been made of the time required for the development of the Nessler color. According to some experimenters, a few minutes suffice for the full coloration; according to others, half an hour or more is necessary.

These differences have their origin in differences in the quality of the Nessler reagent. I have known two Nessler reagents which, although in the course of hours giving the same depths of color with the same quantity of ammonia, required very different times for the production of the coloration. One sample of Nessler reagent gives its maximum of color almost immediately, and another sample takes a quarter of an hour or an hour for a full development.

To a great extent, these differences depend upon whether or not a sufficient quantity of solution of corrosive sublimate has been added to the finished Nessler reagents. Whether the *Nesslerising* takes a couple of minutes, or whether it takes an hour, is a matter of vital importance to those persons who are working the ammonia process of water analysis; and since the employment of the ammonia process has become almost universal, I have deemed it to be worth while to direct attention to the necessity of a careful preparation of the Nessler reagent.—*Chem. News* (*Lond.*), *July* 11, 1873.

Falsifications of Albumen.—A. Herburger.—Albumen is often adulterated with gum, dextrin and starch. To detect these admixtures, 30 grms. of the sample are dissolved in lukewarm water. After some time the mass is stirred. If the liquid contains many white clots, the quality is inferior; that is, a notable quantity of the albumen has been coagulated by the employment of too high a temperature during desiccation. The solution is mixed with acetic acid, and then some alcohol is added to the decanted acid liquid. If gum is present, a precipitate is formed. If starch has been added, it may be recognized in the usual manner by means of iodine. If the albumen contains sugar, it is easily recognized by the use of Fehling's test.—*Ibid.*

Red Ink.—Prof. R. Boettger recommends a red ink which is not affected by powerful chemical agents. The ink is prepared as follows: Carmine is triturated, in a porcelain mortar, with a little solution of soluble glass; afterwards more of this solution is added, until the desired shade and fluidity has been attained. The ink when used dries rapidly, with a gloss, and when not in use should be protected from contact with the atmosphere by closing the vial with an oiled cork.—*Chem. Centralbl.*, 1873, *No.* 30.

A Remarkable Reaction of Nitrobenzol.—Prof. Merz and Dr. Coray observed that, on heating nitrobenzol with hydrate of potassium, a very copious evolution of inflammable gases takes place. If a few cubic centimeters of nitrobenzol are heated in a long test-tube with finely powdered potassa, the volume of the extricated gases is sufficient to produce, on ignition, a flame twelve to eighteen inches high. —*Pharm. Centralh.*, 1873, *No.* 39 from *Polyt. Notizbl.*

Testing Sulphate of Aluminum.—This salt sometimes contains free sulphuric acid, which can be ascertained by treating the salt with alcohol, in which it is insoluble, but which dissolves the uncombined acid, acquiring thereby an acid reaction. Pure sulphate of aluminum imparts to decoction of logwood a dark violet color, which changes to brown in the presence of free acid.—*Ibid.*, from *Reim. Färberzeitung.*

Red Brown Wash for Wood.—1 lb. of sulphate of copper is dissolved in 8 lbs. of water, and the solution applied to the wood with an ordinary brush; this is to be followed by a solution of ½ lb. ferrocyanide of potassium in 8 lbs. of water. The ferrocyanide of copper thus deposited upon the wood fibre is not only not altered by atmospheric influences, but it tends also to preserve the wood from the growth upon it of moss, lichens, fungi, and from the attacks of insects. The color may be darkened or lightened by increasing or decreasing the strength of the solutions, and the wash will be more permanent if the wood afterwards receives a coat of boiled linseed oil or varnish.—*Ibid.*

An Emulsion of Petroleum with Soapwort Decoction has been proposed by Jordery to lessen its inflammability while being transported or stored. A concentrated decoction of soapwort will, by constant stirring, readily emulsify twenty five times its volume of petroleum, and this mixture gradually becomes firmer in consistence. In this condition petroleum does not readily penetrate into the fissures of the barrels, and its volatility is considerably lessened. The addition of a few drops of carbolic acid, or of a somewhat larger quantity of crystallizable acetic acid, renders the mass liquid again in a few minutes, and the petroleum rises clear and limpid to the surface of the aqueous solution.

In a report to the *Conseil de salubrité de la Seine*, Mr. Troost speaks favorably of this invention, and states that it deserves the attention of all interested in the sale of petroleum, notwithstanding the process in its present state does not yet appear to be adapted for introduction into practice.—*Journ. de Pharm. et de Chim.*, 1873, *May*, 318, 319.

Pills of Oil of Turpentine.—Lachambre has modified Dannecy's formula, and operates as follows: 20 grams of white wax are fused together with 8 grams rectified oil of turpentine; the mixture is poured into a mortar, and after cooling mixed with 9 grams of powdered sugar; the mass is now divided into pills, weighing 25 centigrams, each of which contains 5 centigrams ($\frac{3}{4}$ grain) of oil of turpentine. The addition of 2 drops of oil of lemon improves the odor. The pills are rolled in powdered starch and preserved in well-stoppered vials.—*Ibid.*, *Sept.*, 224.

ON THE ADMINISTRATION OF CASTOR OIL.

By E. Gregory.

Castor Oil is indisputably nauseous and unpleasant to take, so much so that some patients cannot be induced to swallow it, by any device or on any consideration. At the same time its qualities are such that in some disturbed states of the system no other purgative can be substituted with safety. On this account a great deal of ingenuity has been exercised in endeavoring to devise means by which the dose may be swallowed without tasting it. So far as I know, success in this attempt has been only partial, and I fear the difficulties in the way are too great to be entirely overcome. Efforts seem to have been made in three directions: first, to enclose the oil in a tasteless envelope, such as the hard and soft castor oil capsules. To these there seem to be two objections. One, from the number of capsules necessary to be taken for a purgative dose; the other from the fact that most of the makers, in their efforts to reduce the size of the dose, have been tempted to add a foreign ingredient, such as podophyllin, or croton oil, both of which are of so drastic a nature as to make it unwise to give them to a delicate patient. The second class of efforts have been made principally by medical men and nurses, and have consisted in floating the oil on some vehicle, such as tea, coffee, punch, wine, beer, etc., etc. The result is that the patient, in spite of the most careful management, finds some of the oil sticking to his mouth, and sinks back in the bed with the conviction impressed on his mind that oil is abominable stuff. The most successful vehicle of this kind that has come under my observation is flax-seed tea, well sweetened and flavored with any agreeable aromatic. If the oil be floated on this, and before the dose is taken, the lungs be thoroughly exhausted, so that the whole can be drunk with a deep inspiration, the taste is very little noticed. The third direction in which inventors have exercised their ingenuity in endeavoring to cover up and disguise the unwelcome flavor is by adding various ingredients to the oil, and by making it into an emulsion. Of this class are Copland's Sweet Castor Oil, which answers admirably for children, but for adults has the disadvantage of retaining its natural appearance, and of being much too thick and clammy for reasonably pleasant use. Wilson's Castor Oil Emulsion has the taste well disguised, and has a little less of the clamminess, but is open to the objection of being too thick, and there is just the suspicion in my mind that the strength may have been fortified by the addition of some more powerful purgative.

In the May number, p. 357, of the JOURNAL is an article by Mr. Herbert G. Rogerson,* in which he gives a formula adapted to emulsify most oils and balsams. It certainly makes a very nice looking preparation, having a white pearly lustre, and with the taste and smell of the active ingredient very well disguised. But it is too thick and must be gulphed down.

For some twelve or fourteen years past I have used the following formula for a Castor Oil draught which has proved very acceptable to adults who could not get down the pure oil. For children it does not answer so well, the dose of necessity being double that of the oil:

℞. Ol. Ricini, ℥j.
Mucil. Acaciæ, ʒij.
Shake well together, then add
Syr. Simp. ʒij.

Shake again, then flavor with Spts. Menthæ Pip., or according to taste, and make up two ounces with water. This mixture can scarcely be called an emulsion, but it mixes well on vigorous shaking. The taste is well disguised; it is thin enough to be easily taken from a wineglass, and it leaves no oil sticking round the mouth. I have lately obtained still better results from the following formula:

℞. Ol. Ricini, ℥j.
" Anisi, gtt x.
Chloroform, gtt x.

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* American Journal of Pharmacy, April, 1873, p. 174.

Shake well together, then add

Mucil. Acaciæ, ℥ss.

Shake well and make up to 2 ozs. with water. I know not whether this may be considered an infringement on Mr. Copland's patent, but it is a very nice looking and palatable preparation, and does not separate so speedily as the last.—*Pharm. Journ.* (Canadian) Sept., 1873.

Lindsay, July 25th.

ON A CURIOUS REACTION OF BENZOIC, SALICYLIC, AND HIPPURIC ACIDS.

By T. L. Phipson, Ph.D., F.C.S.

When benzoic acid and glucose, in the proportions of about 3 equivs. of the former to 1 equiv. of the latter, are mixed with a large excess of monohydrated sulphuric acid, and the mixture is slightly warmed, a fine blood-red color is developed, very similar to that produced when salicin or willow-bark are touched with concentrated sulphuric acid. After a while the mixture becomes brown, and then blackens. Benzoic acid alone does not produce this reaction. It matters little whether the glucose is artificial or natural.

Salicylic acid, with glucose, treated in the same manner, presents the same reaction in a still more decided manner.

Hippuric acid, with glucose and sulphuric acid, gives first a clear brown mixture, in which also the blood-red color soon developes itself; then the whole mass becomes black, and evolves a large quantity of an odorless and colorless gas. This gas is not absorbed by water nor by potash, and is inflammable, burning with a blue flame; I conclude that it is chiefly oxide of carbon. As the reaction continues from this time, after the source of heat is withdrawn, the mixture soon becomes very hot, and then sulphurous acid is given off also.—*Chem. News*, Lond., July 11, 1873.

A PROPOSITION FOR A SIGN TO BE USED BY MEDICAL MEN TO MARK UNUSUAL DOSES IN PRESCRIPTIONS.*

By R. Hampson.

In proposing a sign, for the adoption of medical men, to denote with unerring significance the prescribing of unusual doses, I feel that I may almost be open to the charge of trespassing upon medical ground, and I must admit that a proposal of this kind would have come with greater propriety from medical men themselves. I believe, however, in the light of a recent painful event, that the time has arrived when the adoption of a distinctive sign will be welcomed both by the prescriber and the dispenser.

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* Read before the British Pharmaceutical Conference, Sept. 16th.

The interests of pharmaceutists are in a great measure so identical and so intimately bound up with the physician's interest in his patients' welfare, that the adoption of a sign, if recommended by this Conference, will, I have no doubt, be received by the medical profession with proper consideration and respect.

An unusual dose I define as a dose in excess of the maximum adult dose of the Pharmacopœia, or a dose exceeding that commonly administered.

Our experience as dispensers of medicines will have fully proved to us that the marking of unusual doses would be accepted as a long desired boon by all concerned.

The prescriber, in employing an accepted sign, of easy recognition, would be assured by its use that it would remove all hesitation and questioning doubt from the mind of the dispenser, and that it would ensure for his patients the receiving of the prescribed medicines without needless delay—which delay, in some cases, may mean loss of life or the suffering of unnecessary pain and watchfulness.

The pharmaceutist, whose occupation it would be to dispense the duly marked doses, would greet these unmistakeable signs with genuine pleasure and relief, and their use would save him considerable anxiety, as well as the loss of much time and the inconvenience so often caused in seeking out the prescriber's real intentions.

I shall not take up time in citing cases which have occurred to me individually, or in alluding to any brought under my notice, to prove that the use of a sign is imperatively demanded by the exigencies of the case. Every one present whose vocation it is to dispense prescriptions will call to mind frequent instances when an indicating sign to mark the unusual doses would have saved considerable time, trouble, and vexation.

It is certainly very remarkable that, in this country of practical expedients, a rule of this kind should not years ago have been in use.

In Germany and Austria, where many things are arranged by the strong hands of the state, a clearly defined rule, of a too arbitrary character for adoption here, set forth in the pharmacopœias of those countries, has been employed for some time, and this fact is presumptive evidence that a rule, or rather a sign, of some kind is required in this country.

It is folly to suppose, as averred, that we can have any conceivable interest in "limiting medical practice," or in any way passing a shade of criticism upon it. Our interest is almost necessarily in a contrary direction, and our duty is obviously clear and well defined. It is simply to provide with perfect integrity the medicines prescribed; but I certainly think we are entitled to have them prescribed as plainly and as legibly as possible; and when an unusual dose is required it is only reasonable to request that it shall be so described and signally marked that there shall be no room for doubt in the mind of the dispenser that the dose is really intended, and not *mis*-prescribed.

If doubt should exist as to whether a prescribed dose is intended, it is the dispenser's acknowledged duty to communicate speedily with the prescriber to ascertain his intentions.

We must not, however, let it be supposed that a pharmaceutist is *not* at liberty to decline to dispense a prescription in which an unusual dose of a remarkable character is prescribed.

My experience includes the dispensing of some very unusual doses, and I cannot forget the grave sense of personal responsibility dwelling in my mind whilst dispensing these particular prescriptions.

If we feel the responsibility too oppressive, we ought to consider ourselves fully at liberty to decline to dispense prescriptions of this exceptional character. I am sure we should never lightly exercise this undoubted right of refusal, or in any way forget to show, on such occasions, a proper and due regard for the delicate professional position of the prescriber.

As the object we have in view is of more importance to medical men than to pharmaceutists, I trust the medical profession will give their willing and necessary aid in bringing about the general adoption of a sign to mark unusual doses. We may, I hope, also look with confidence to the medical journals to endorse our efforts to establish the use of that sign which may be considered to be the best suited for the purpose intended.

In Germany and Austria a point of exclamation is used to denote an unusual dose; thus—

Tincturæ Digitalis, ... ʒiv !

This is an excellent sign, and might answer the purpose in this country, but I am strongly disposed to think the use of the initial letters of the prescriber's name is the best and most appropriate sign to be employed.

It is a custom in England to use the initial letters of a signature when a deed is altered to denote agreement or acquiescence, and there would be a legal value attached to the initial letters written by the prescriber, and they would be useful to compare with the actual signature, if a dispute at any time arose concerning a prescription to which they were attached.

The sign I offer for your acceptance is therefore the prescriber's initials in brackets, written immediately after the unusual dose; thus—

Tincturæ Digitalis, . . . ℥iv. [J.R.L.]

It would also be of inestimable advantage if the name and address of the prescriber were printed or written upon *every* prescription.

In the United States this is invariably done. (? Edit. Am. J. Ph.)

The loss of much valuable time would be obviated if the latter suggestion became the rule.

The prescriber's initials, which may be known only to a few pharmaceutists, are not sufficient to denote proper authenticity, and the full name and address also afford protection to the prescriber and dispenser alike.

I hope this Conference will not only fully deliberate upon this important question, but will decide *unanimously* upon the sign to be suggested to the medical profession for their adoption, and it is equally desirable that a resolution embodying your decision be carried and duly published.—*Pharm. Journ. and Trans.*, Sept. 27, 1873.

PRELIMINARY NOTICE OF A NEW KIND OF PLASTER

By L. E. Shael.

It is an uncommon practice among physicians to order an aqueous compound and an oily substance together in the form of a plaster. Commonly this case could be managed without producing serious complications, but when the mixture is to be applied upon another plaster, previously spread, then the skill of the dispenser is unduly taxed. Sometimes such directions could not be carried out by common means, and, therefore, it becomes optional with the compounder to change the character of the ingredients, or their proportion and quantity, as prescribed, or make additions which will afford the necessary consistency; or in the event of non-compliance with the indications, fail in the attempt, and, without really good cause, sacrifice his reputation.

When the prescription is impossible, according to its letter, a conscientious pharmacist will always reserve to himself the necessary license to construe and execute it according to the spirit, as prompted by the occasion, an action justified by common reason, and conceded by the interests of both professions; and hence an operator deficient in this amount of judgment and application is unqualified to serve at the dispensing counter.

The physician desiring a certain combination, writes for a number of ingredients, in the proportion desired; but being himself no pharmacist, therefore utterly unskilled in this art, and consequently expects that the operator, with the proper capacity, will elaborate the requested, according to the art of pharmacy, and the essence of the order.

This, however, does not imply uncalled-for substitutions or mercenary interference with the quantities of expensive ingredients, neither does it confer the privilege of dispensing pills for powders, or liquid mixtures in the place of these, nor does it justify the dispensing of a greater quantity of medicine than the physician directs.

Utterly impossible combinations or dangerous mixtures or doses are of course, from *prima facie* evidence, referred to their author for correction or revision. A thoroughly competent pharmacist will never constitute himself the umpire in regard to the pathological merits of any case as appears from a prescription; a doubt in this regard does not find elucidation within the confines of the pharmacal art.

Now, however, if it is ordered to apply to the square inch of surface of a plaster of some particular kind, previously spread, an additional quantity of 5 to 10 grains each of some solid extract and some fixed or volatile oil, then it requires the intervention of another agency which will harmonize these extremely heterogeneous elements. The solid extract must necessarily first be softened with a small proportion of water; it will even then adhere only with difficulty to the plaster, but much more so after the addition of the oily substance, which produces a mixture that in most cases instantly separates when in a state of rest, and possesses no adhesiveness whatever. More oil or more extract would avail nothing, neither would a more solid fatty ingredient be of much consequence, but the incorporation of a moderate quantity of powdered tragacanth affords the desired and required assistance by which the mixture can be made to assume an adhesive, compact and uniform character, and thus be easily applied upon the plaster, which by aid of its exposed margin, will stick firmly and securely to the position in which it is placed on the skin.

Other plasters can be produced by the aid of powdered tragacanth, whereby large quantities of oil or extract can be employed, when spread upon sheets, with an adhesive margin. In every case, the extract is first liquefied with water and a small proportion of glycerin, the oily substance added, then thickened with powdered tragacanth, and finally spread upon any desirable base, with an adhesive margin.—*The Pharmacist, August*, 1873.

ON THE PRESERVATION OF FOOD.

By S. P. Sharples, S. B.

One of the surest signs of advance in civilization is the increased attention that is being paid to the subject of furnishing improved articles of food for the masses, at such a rate and in such quantities that the use of fresh fruit and vegetables out of season is no longer confined to the tables of the wealthy. One of the earliest efforts of man, when emerging from the primitive savage state, is to provide food for the morrow, for so long as he is dependent on the daily chase for his means of sustenance he can make but little progress, and, moreover, the tribes who live from hand to mouth lead but a precarious existence—feasting to-day and starving to-morrow.

One of the earliest methods of preserving food is by simply drying it, either in the open air or by aid of the smoke of a smoldering fire. This latter method furnishes a curious instance of the way that science is so often anticipated in her methods by those who know nothing of her principles. The creasote of the smoke acts as the preservative. Carbolic acid, a nearly allied substance, is recognized to-day as one of our best preservative agents, although creasote still holds its own. The objections to drying meats are that the flesh is rendered more or less unpalatable, and, unless it receives some previous treatment, is apt to putrefy somewhat in the operation. The most common method of treatment employed is to either soak it in a strong solution of common salt, or to rub it with a mixture of common salt, saltpetre, and sugar or molasses, this last being the method by which the well-known sugar-cured hams of the West are prepared. The use of salt and other chemicals is objectionable, from the fact that they more or less impair the original flavor of the meat, and if the provisions prepared in this way are indulged in for a length of time they are apt to produce disease. The action of salt has never been thoroughly explained; salt and sugar are supposed by some to owe their preservative effects to the fact that they abstract water from the article to be preserved: others claim that salt acts by coagulating the albuminoid bodies which give rise to putrefaction; while still a third class, including most of the prominent investigators in this line of research, allege that salt, carbolic acid, creasote and similar articles act as a poison to infusoria and thus prevent the commencement of decay.

Shortly after the discovery of oxygen, it was observed that if oxygen in a free state was completely excluded from animal or vegetable matter, they might be preserved for an indefinite length of time. This fact, like many others, had been used blindly and imperfectly for ages. The bodies of men and animals had been preserved in cloths saturated with pitch and rosins, and the great were buried in leaden coffins, hermetically sealed. But no practical use of this fact seems to have been made until the year 1807, when a patent was granted in England for pouring a hot solution of gelatin or meat extract over the meat, so as to completely exclude the air. This has since been a favorite method with inventors, who have endeavored to preserve meats by covering them with various impervious substances, but they have not generally proved very successful, it being exceedingly difficult to keep such coverings intact.

The patent which may be said to have given rise to the modern industry of packing meat and vegetables in air-tight cans was one granted in England to Peter Durand, in August, 1810. The main points of this patent are as follows:

First.—Preserving animal food, vegetable food and other perishable articles a long time from perishing and becoming useless, by excluding all communication with the external air. The articles are enclosed in bottles, or other vessels of glass, pottery, tin, or other metals or fit materials, and they are closed by the usual methods of corking, soldering, luting or cementing. Further, making use of vessels with stoppers fitted or ground with emery, or screw caps, with or without a ring of leather or other soft material between the faces of closure, or with covers of cloth, leather, parchment, bladder and the like.

Second.—Immersing the vessels which have been thus charged—and well closed—completely in cold water, gradually heating to boiling, and continuing the boiling for a certain time. Vegetable substances to be put into the vessels in a raw and crude state, and animal substances to be partly or half cooked, although these may be put in raw.

Lastly.—Although the application of the water-bath as described is preferred, an oven or a stove or a steam-bath may be used, and also the aperture, or a small portion thereof, may be left open, and is closed when the effect of heat has taken place.

This is the whole art of canning fruits as practiced to-day, although experience has suggested certain modifications. Numerous patents have since been granted, both in England and in this country, for details of the process, such as using a bath of chloride of calcium in place of pure water, as by this means a much higher temperature can be obtained. Another patent is a modification of the last clause of the above; the cans are first closed completely and then a small hole is punched in the cover to allow the heated air and steam to escape; this is afterwards closed by soldering. Various modifications of the vessels above described, such as peculiar methods of constructing the mouths, using rubber in place of leather, and using clamps in place of the screw cap, are also found on the records; but in all essential particulars the old patent remains unchanged.

A great deal of interest has been recently excited by a decision of Judge Clifford, of the U. S. Court, in the case of a patent granted to Isaac Winslow for preserving green corn. In the course of this trial the processes now used were pretty fully explained, as follows: The corn, or other vegetable, is gathered in as fresh a state as possible, and is prepared by removing all refuse or imperfect parts, and such parts as would add to the bulk of the finished product, without increasing its value, as the hulls of peas and beans and the cores of the corn. The prepared articles are placed upon coolers, which are surrounded by ice water until wanted for use. The utmost care must be used in this preliminary process to avoid any mixture of immature, over-ripe or defective specimens, as a few such will spoil the lot. The cans are filled with the vegetables as quickly as possible and are hermetically sealed by soldering on the covers. Tin is almost exclusively used for packing, at present, as great loss is incurred from breakage when glass is employed. The tins are, moreover, much easier to make and keep tight than is the case with glass jars. The cans are then placed in the bath, and heated from one-half of an hour to four hours, according to the nature of the article—if it is comparatively dry, as peas, beans or corn, it takes much longer heating than if juicy, like tomatoes, the latter being one of the easiest articles to preserve. In some cases a small hole is punched in the lid previous to heating; this is left open until the steam escapes freely, and is then sealed; others do not punch this hole until after the can has been heated for some time, and still others do not consider it necessary to vent the can at all. The advantage of venting the can when it is first placed in the bath, and allowing it to remain open until the steam issues freely, are several. In the first place, the air is completely removed before it has had time to act upon the fruit. If sealed first and vented after it is hot, the confined air tends to burst the can, and also acts upon the flavoring matter of the vegetables, and tends to make it somewhat stale. But the greatest advantage of venting is the fact that a can vented and sealed when hot partially collapses as it cools, and the heads sink in; so long as the can is in good condition the heads remain concave, but if by any accident it commences to ferment the heads at once swell out, and it becomes what is known in the trade as a "swell head."

Meats, from their greater susceptibility to change and decay, are much harder to preserve, and recourse is generally had to some chemical agent. The most common of these are the alkaline or earthy-alkaline sulphites. These are added in a minute proportion to the contents of the can before sealing, and serve either to destroy what little free oxygen remains in the can, by combining with it, or, what is more probable, act as poisons to infusoria.

Some persons have conceived the idea that canned goods are not healthy, and much difficulty has been experienced in introducing canned Australian and South American meats among the working classes in England, from their being prejudiced against articles that they could not inspect before buying. This prejudice is, we are happy to say, rapidly dying out. The State Board of Health of Massachusetts made some elaborate investigations upon the subject of the contamination of such articles by lead, tin or copper from the cans. These were a complete failure so far as proving any injurious quantities of these metals to be present.

The length of time which articles thus sealed may be preserved is still unknown, and there is no reason to doubt that they will be kept perfectly until the cans are destroyed by external agencies. Dr.

Letheby exhibited, at a lecture before the Society for the Encouragement of Art, cans of mutton which had been packed forty-four years before, and had been exposed for some years during summer and winter to an Arctic climate. They were still in a good state of preservation.

The business of canning goods received its first impetus from the necessity of supplying Arctic and other voyagers with palatable food; when it was found that this could be done with ease and profit the trade was soon extended, and it has now become one of the leading industries. The amount of capital invested is very great, and, contrary to general opinion, the profits are but small.

While the general process of canning is free to all, there is scarcely a packer but who has, or imagines he has, some special secret by which he is enabled to put up either a better or cheaper article than any one else. The business requires considerable experience to carry it on successfully, and considerable cash capital, as labor and materials must all be paid for with cash, and returns are often slow, a heavy stock having at times to be carried over.

The number of cans of peaches packed last year approximated about twelve million, tomatoes eighteen million, and corn from six to eight million. The headquarters of peach canning are in Maryland and Delaware, more than half the peach-packing firms hailing from Baltimore alone. Large quantities of oysters are also put up along the Chesapeake. Tomatoes come chiefly from New Jersey, although many are packed in Baltimore, New York, and in the Eastern States. The best corn comes from Maine, where are also situated the largest lobster establishments.—*Journ. of App. Chem., Aug.*, 1873.

ON THE PREPARATION AND COATING OF IODIDE OF IRON PILLS.*

By Mr. Magnes-Lahens.

The conditions which assure the best preparation and conservation of the iodide of iron pills, are as follows :

1. For the preparation of iodide of iron, to be used for pills, employ very little water, so that a pill mass of good consistence may be obtained with very little evaporation.

2. Avoid the filtration of the solution of iodide of iron; it alters the salt, and a portion of it is lost by being retained in the filter.

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* Translated from Journ. de Pharm. et de Chim., 1873, Oct., p. 328—330.

3. Take a sufficient quantity of iron, so that a small quantity of it will remain in excess after the complete saturation of the iodine; this excess of iron prevents the alteration of the iodide, during the preparation as well as while keeping the pills.

4. Substitute a mixture of gum and sugar for the honey, which presents the triple inconvenience of being acid, of rendering the exact formation of the pill mass rather difficult owing to the water, which it contains in great abundance, and of being very hygrometic when concentrated.

5. Use gum arabic in preference to gum tragacanth, because it gives a mass less elastic, more homogeneous and dissolving better and quicker in the stomach.

6. Use an iron dish instead of glass or porcelain vessels.

7. Operate at a temperature of 50° to 60° C. (122° to 140° F.) These rules form the basis of the formula, and of the mode of operation, which is as follows:

Take of—

Pure iodine, ...	4·10 grams.
Powdered iron, ...	1·90 "
Powdered sugar, ...	2·50 "
Powdered gum arabic, . . .	2·50 "
Distilled water, ...	2·50 "

Put in an iron dish the water and the powdered iron, add the iodine gradually, and facilitate the reaction by stirring with a spatula of iron and by warming a little; when the reaction is complete, add the gum and the sugar, then heat to about 50° C., stirring continually, and until the mass will cease to drop, when a little is taken up with the end of the spatula. When that has been reached, the operation offers no further difficulties; the pills may be readily rolled out and coated.

To obtain the pills, incorporate into the mass 5 grams of powdered liquorice root, if necessary; heat it for some minutes, divide the mass into one hundred pills, roll them in the powdered gum, and, if desired, coat with mastic and tolu.

For sugar-coated pills (dragées), incorporate with the mass 7·50 grams of powdered gum arabic, then heat it slightly to soften it. The hundred pills obtained are rolled in powdered gum arabic, then placed in a suitable vessel, heated and agitated with a circular motion until of the proper hardness, after which they may be sugar-coated.

Each pill and each dragée contains about 5 centigrams of iodide of iron and one centigram of powdered iron.

The iodide of iron is in a state of perfect purity, and may be dosed with great precision. Put in cold water some months after their preparation, they will dissolve, save the excess of iron, without coloring it.

The following is the mode of coating as proposed by Mr. Magnes-Lahens: Roll the pills quickly, about fifty at a time, with the hand in a clear mucilage of gum arabic spread thinly in a saucer; when they are completely moistened throw them into a basin containing a mixture of sugar, 9 parts, with gum arabic one part; agitate them until they are covered with a layer of the powder, heat them for about eight or ten minutes, at first very slightly, and afterwards increase the heat, rotating the pills continually. After cooling coat them a second and then a third time, following the process just described. These pills may thus be prepared in small or large quantities; in the latter case they should be put in the drying closet after each coating. Made with this precaution they will keep a long time in good condition. C. J. M.

THE SEPARATION OF THE MIXED ALKALOIDS FROM CINCHONA BARKS.

By Dr. J. E. De Vrij.

Recently a London firm of manufacturing chemists, who had read with interest my paper on cinchona alkaloids published in this Journal, applied to me to inform them "by what means I separate the mixed alkaloids from the dry bark." I therefore suppose it may perhaps be useful also for other readers of this Journal if I publish my actual method—which has been published in a Dutch periodical in 1871—also in this Journal. 20 grammes of powdered and sifted bark, dried at 100° C., are mixed with milk of lime, made of 5 grammes of dry slaked lime and 50 grammes of water. This mixture is slowly dried, and when entirely dry, heated in a flask with 200 cubic centimetres of very strong spirit (the strongest possible) till it boils. After cooling and subsiding, the clear liquid is poured on a filter large enough to contain all the bark, but not larger than is strictly necessary (a filter of 15 centimetres diameter is sufficient.) The residue in the flask is now mixed again with 100 cubic centimetres of spirit, this mixture well shaken, and poured on the filter.

When all the liquid has passed through the filter, the powder remaining on the filter is washed with 100 cubic centimetres of alcohol, so that in the whole 400 cubic centimetres of alcohol are used for 20 grammes of bark. The united liquors are now slightly acidulated with weak sulphuric acid, whereby a precipitate of sulphate of lime is formed. After this has subsided the greater part of the liquor can be poured off, the rest being filtered through a small filter. The clear liquid is now distilled to obtain the greater part of the spirit used, and the remaining liquid poured into a capsule, to which is added the spirit and the water by which the distilling apparatus is subsequently washed. The capsule is now heated on a water-bath till all the spirit has been expelled, and the remaining liquor which contains all the alkaloids in the form of acid sulphates, is, after cooling, filtered through a small filter. On the filter remains a mixture of quinovic acid and fatty substances, which must be washed repeatedly with water slightly acidulated by sulphuric acid till caustic soda no longer produces any turbidity in the passing liquid. The filtrate is now reduced to a small volume by heating on a water-bath, and while *still warm* precipitated by a slight excess of caustic soda. The benefit derived from this kind of precipitation is that the alkaloids precipitated from a warm solution are less voluminous, and can, therefore, more easily be washed. The drawback, however, is that the alkaloids from some barks melt under these circumstances, which drawback can, however, easily be rectified by powdering carefully the alkaloids after the cooling of the liquor, and collecting this powder on a small filter. After washing with the smallest possible quantity of distilled water, sufficient to remove the soda salt but not to dissolve quinine, the filter is laid upon blotting paper, and this so often renewed till the mixed alkaloids can easily be separated from the filter without adhering to it, which can be done before they are entirely dry, but requires some practice. They are then heated in a weighed capsule on the water-bath, till repeated weighings show that the weight remains constant. The observed weight multiplied by five gives the amount of mixed alkaloids in 100 parts of bark.

The amount of quinovic acid can be ascertained in the meantime, if the mixture of quinovic acid and fatty substances be treated with a weak solution of caustic soda, by which a great part of this mixture is dissolved. If to this turbid solution a slight excess of chloride of calcium is added, only the quinovate of lime remains in solution and can be obtained in the shape of a clear slightly-colored liquid by simple filtration. If this clear liquid be acidulated by hydrochloric acid, the quinovic acid is precipitated in the shape of a voluminous jelly. As the amount of quinovic acid is generally very small, its quantity can rarely be ascertained with accuracy, unless the amount of bark be not under 40 grammes. As I generally make two analyses of 20 grammes of bark, I combine the mixture of quinovic acid, etc., of the two filters for the determination of the quinovic acid. If the two analyses are carefully performed under the *same* circumstances, the results differ only very slightly, as may be seen in my analysis of some Jamaica barks, published on p. 121 of this Journal.

The Hague, 17*th September*, 1873.

—*Pharm. Journ. and Trans.*, *Sept.* 27, 1873.

NOTE ON THE HYDRATION OF EXTRACTS.*

By Charles Ekin, F.C.S.

It has occurred to me that Wanklyn's method of limited oxidation by means of an alkaline solution of potassium permanganate might be applied with good results to the assay of such medicinal extracts as are dependent for their activity entirely, or for the most part, on certain alkaloids—all alkaloids yielding a certain portion of their nitrogen as ammonia. Also that it might be made available for the determination of the relative values of the first year's and second year's plant of hyoscyamus, about which a good deal has been taken for granted but nothing yet really proved. And again in the case of conium, to determine which has the greater activity, a tincture made from the fruit or from the leaves. Of course the difficulty lies in the complete and easy separation of the vegetable proteides of the plant juices, but I am by no means sure that this is not a difficulty that can be overcome, although I regret I have not yet had time to go sufficiently into the subject so as to be able to lay results of any value before this meeting of the Conference. I have had, however, incidentally to determine the amount of water in various extracts, and have thus so far answered question 66 on the blue paper circulated by the Conference, viz., "Is it possible to assign a definite degree of hydration to medicinal extracts with a view to uniformity of strength?"

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* Read before the British Pharmac. Conference.

I believe it is quite possible to do so, certainly with some if not with all extracts.

I find that extracts of fair average consistence for pill-making, when subjected to the heat of a water-bath, in the cases of belladonna and hyoscyamus lose 20 per cent. of their weight, and in the case of conium, 25 per cent.

The plan I adopted was to spread the extract very thinly on a thin platinum capsule, and dry at a temperature of 212° until it ceased to lose weight. Various experiments with the same extract gave in this way very constant results. At first I operated on quantities of 10 grains at a time, but I found that several hours were then required for complete desiccation, whereas if only one or two grains were used the time required was little more than half an hour.

The consistence of extracts varies so much that it would seem advisable to define in the Pharmacopœia the amount of water each should contain, the amount to be determined as I have recommended. When once a standard has been set up there would be practically little difficulty to manufacturers, for I find after a few trials the eye can determine from the consistence of the extract, to less than 1 per cent., the amount of water present.—*Pharm. Journ.* (*Lond.*), *Oct.* 11, 1873.

THE ACTION AND RELATIVE VALUE OF DISINFECTANTS.*

By J. A. Wanklyn.

If we heat the infectious material of, for instance, scarlet fever to a red heat, we destroy it. There can be as little doubt that, if we bring chlorine gas thoroughly into contact with infectious material, we destroy it likewise. If we boil it with oil of vitriol, or with permanganate of potash, we destroy it. Probably, too, if we soak it in concentrated carbolic acid, or treat it with excess of corrosive sublimate or arsenious acid, we render it inert. It is, indeed, highly probable that every kind of infectious material is capable of being rendered inert by thorough contact with any powerful chemical reagent.

But if the heat be only gentle, and if the chemical agent be dilute, there is absolutely no reason for believing that, by the employment either of the one or of the other, we are so much as contributing towards the destruction of infection. There is a difference not only in degree, but even in kind, between the action of the same chemical when concentrated and when dilute. Concentrated sulphuric acid will convert cane-sugar into a lump of charcoal, but dilute sulphuric acid transforms it into dextrin and glucose, and, curiously enough, fits it for undergoing septic changes. So, again, very dilute bleaching powder has actually been found to favor the development of certain low forms of life; and Pettenkofer, as is well known, has found that germs whose development had been arrested by carbolic acid, start into life when the carbolic acid is still further diluted.

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* Read before the Public Medicine Section at the Annual Meeting of the British Medical Association in London, August, 1873, and printed in the "British Medical Journal."

In the practical employment of disinfectants, the fact that dilution frustrates the action of a disinfectant has been very generally lost sight of. Attempts have often been made to disinfect the atmosphere. It is even said that, during the panic occasioned by the cattle-plague, the commissioners endeavored to disinfect the general atmosphere of the agricultural districts by turning cattle adrift with towels soaked in carbolic acid attached to their horns. I need not insist on the futility of such a proceeding; or, indeed, on the necessary futility of any effort to eliminate anything by chemical means from the general atmosphere covering our fields or occupying our streets. But it will probably not be quite needless to insist upon the impracticability of attacking the very limited atmosphere of a dwelling-house by chemical means. Certain very simple considerations will, however, suffice to throw the utmost doubt on the utility of endeavoring to purify air which has suffered contamination.

In a well-known official memorandum, drawn up, I believe, by Professor Rolleston, of Oxford, directions are given for the disinfection of a room with sulphurous acid. So much sulphur (the quantity proportionate to the size of the room) is to be burnt, and doors and windows are to be shut; and the memorandum winds up with the statement that, if a man be able to abide in the room for one instant whilst the disinfection is being carried on, then the disinfection is not to be depended upon. In other words, it is admitted that, not until you have put so much sulphurous acid into the air as to make it totally unfit to breathe, have you disinfected that air. The same certainly holds generally in regard to other agents; and, in short, we cannot hope to purify the air of a room by any chemical means without spoiling the air. It is therefore useless to try to disinfect the air. This is strikingly illustrated in reference to printed directions relative to the practice of disinfection. See, for instance, Dr. Wilson's little card, "Disinfectants and how to use them."

"Chlorine gas, poisonous and irritating to the lungs when in excess. For an occupied room, close fire-place, windows, etc., as directed under F. Pour over a quarter of a pound of black oxide of manganese in a dish placed high half a pint of muriatic acid (spirit of salt), and leave for six hours. It bleaches, and is apt to make white-limed walls sweat—useful for cabs."

Now if we take a room, say 13 feet by 13 feet and 13 feet high, or of a capacity of about 39 cubic metres (and that is not a very large room), and if we calculate what proportion by weight the chlorine liberated by the quarter of a pound of oxide of manganese will amount to, we get about 3 parts of chlorine in 1000 parts of air. In point of fact, however, the proportion of chlorine in the atmosphere of such a room would never reach anything like 3 per 1000, inasmuch as walls are not impervious, and during the six hours the air would have changed, and 3 parts per 10,000 would probably be nearer the true proportion. But this is the room not fit to inhabit by reason of the presence of chlorine. The minuteness of the dose of chlorine which the inhabited room receives may be left to your imaginations. To me it seems that the wisdom of the physician who places his little saucer with bleaching powder and muriatic acid in the chamber of his patient, is comparable with that of the cattle-plague commissioners who tied the carbolized cloths to the horns of the cattle.

Experience confirms that which an appeal to first principles suggests; and we are informed that, during the Franco-German war, although the hospitals stank of carbolic acid, yet wounds were not healthy. Although I believe that the purification of air which has once been defiled is a hopeless task, yet it by no means follows that disinfectants have nothing to do with purity of atmosphere. It is open to us to abstain, in a very large degree, from rendering the air impure.

By the efficient application of disinfectants to foul surfaces, we may hinder defilement of the atmosphere of our dwellings. One of the main functions of a serviceable disinfectant is that it shall be antiseptic: that it shall postpone decomposition and putrefaction until a convenient season. A good disinfectant should not itself defile air, neither should it be dangerously poisonous or corrosive. There is a very common substance which has long been used to hinder putrefaction. It does so only in a concentrated form. It has no smell; it is not poisonous. It can hardly be said to be corrosive. Its name is common salt. I hold that this substance and its analogues—the chloride of calcium and the chloride of magnesium—are the most available general disinfectants.—*Pharm. Journ.* (*Lond.*), *Sept.* 13*th*, 1873.

Artificial Ivory.—Two pounds of pure india rubber are dissolved in thirty-two pounds of chloroform and the solution saturated with purified ammoniacal gas. The chloroform is then evaporated or distilled off at a temperature of 185° Fahr. The residue is mixed with pulverized phosphate of calcium or carbonate of zinc, pressed into moulds and cooled. When the phosphate of calcium is used, the resulting compound partakes in a great degree of the nature and composition of genuine ivory, for we have the requisite proportion of the phosphate, and the india rubber, which takes the place of the cartilage; and the other component parts of the genuine article are of little importance.—*Scientific American, Aug.* 30, 1873.

Minutes of the Philadelphia College of Pharmacy.

Philadelphia, Ninth month 29th, 1873.

The Semi-Annual Meeting of the Philadelphia College of Pharmacy was held this day at the College Hall; fifty-three members present. In the absence of the President, Robert Shoemaker, Vice President, was called to the chair. The minutes of the last meeting were read and adopted. The minutes of the Board of Trustees were read for information by Wm. C. Bakes, Secretary of the Board.

By these minutes we are informed of the adoption of an amended rule, changing the qualifications for graduation in the College, and also of the adoption of a new certificate to be issued to wholesale druggists and manufacturing pharmaceutists, differing from the diploma, to be called a "Certificate of Proficiency."

They inform us also of the election of the following gentlemen to membership in the College, viz.: Hans M. Wilder, Oliver T. Jester, Charles Wirgman.

Prof. Maisch, on behalf of the Committee appointed to write a letter of congratulation to our honorary member, Carl Frederking, of Riga, read a copy of the very interesting epistle, dated July 7, which was approved and directed to be entered on the minutes.

Prof. William Procter, Jr., on behalf of the delegation appointed to attend the meeting of the American Pharmaceutical Association, held in Richmond, Va., made the following report, which was accepted and ordered to be placed on the minutes.

To the Philadelphia College of Pharmacy:

The delegates appointed to attend the meeting of the American Pharmaceutical Association, at Richmond, Va., report that the meeting was held at the time and place appointed, and was an occasion of unusual interest, both from the number in attendance and the variety of interesting papers and reports presented. The meeting was opened by President Ebert in a few remarks, when he introduced Mayor Keiley, Mayor of the City of Richmond, who, in a remarkably forcible and eloquent speech, welcomed the Association to that city. A large portion of the visiting members came in the steamer from Norfolk, and were met a few miles below the city by the Committee of Reception from the druggists of Richmond on a barge, and conveyed to the landing, and thence to their hotel in stages. The welcome extended was most warm and friendly, and through the entire continuance of the session in various ways. The members were reminded, by attention to their wants and inquiries, that they were among a people on hospitable aims intent.

The usual business of the first sitting ended with the reading of the President's address. At the second sitting the new officers were elected, consisting of John F. Hancock, of Baltimore, President; William Saunders, of London, Ontario, 1st Vice-President; Dr. Nichols, of Newark, N. J., 2d Vice-President; and J. T. Buck, of Mississippi, as 3d Vice-President; C. Lewis Diehl, Reporter on the Progress of Pharmacy, a new office created at the first sitting in accordonce with the report of a committee appointed last year. The number of papers in answer to queries and volunteer papers was 36, several of considerable importance. Mr. Diehl presented the Report on the Progress of Pharmacy, having brought the report to July 1, 1873.

The Committee on the Centennial reported in favor of a course of procedure involving the idea of holding the meeting of 1875 in Boston, when, by taking time to consider, all the details should be decided on in advance, and extending a hearty welcome to our *comperes* in Europe and elsewhere to meet with us in 1876 at Philadelphia, and to take efficient means to render the welcome effective.

The exhibition was held in the basement of the building, and was creditable to the occasion, several firms being well represented in chemicals and pharmaceutical preparations. The members were invited to an excursion on the James River on Thursday afternoon at 3 o'clock, to go to Dutch Gap and back over an interesting portion of the river, the theatre of many events, especially Fort Darling, in the late war. The Mayor and many Richmond gentlemen were aboard, an excellent collation was spread and champagne flowed for those who desired it. On arriving at the Gap, rendered famous by General Butler, the steamer passed through it, turned and repassed on the homeward journey, when the Mayor being called for, made a most eloquent and amusing speech, pertinent to the occasion, and was followed by several members and others, the whole affair being one of unalloyed pleasure. The Association adjourned on Friday morning, to meet in Louisville, Ky., on the 2d Monday of September, 1874.

Prof. Maisch, on behalf of the delegation appointed to represent this College in the Convention of the Teaching Colleges, held at Richmond, made a verbal report. Joseph P. Remington was appointed by the delegation to fill the place of Prof. Robert Bridges, who did not attend. Two sessions were held by the Convention. At the first sitting the subjects of preliminary examination prior to entering, and the requirements for graduation by the various colleges, were discussed, and at the second session the question of conferring a title in the place of the degree of graduate in pharmacy. The subject was deferred until the meeting next year.

A beautiful specimen of red cinchona bark was presented to the College by Messrs. Geo. D. Wetherill & Co., for display in the cabinet, or elsewhere, as the College may direct. It was much admired by the members present, and it is hoped will serve as a nucleus around which will cluster many fine specimens of materia medica from all parts of the country.

Prof. Maisch, on behalf of Fred. B. Power, presented a fine specimen of monobromated camphor, and from Louis Koch a number of illustrated sheets of materia medica, by Prof. Nees von Esenbeck, being parts of a work of great value.

On motion, they were all accepted, and the thanks of the College were directed to be presented to the donors.

A letter to Dillwyn Parrish, President of the College, was received and read as follows:

No. 225 S. Broad Street,
Friday, Sept. 26, 1873.

Dillwyn Parrish, Esq.

Dear Sir.—Mr. Bechtel, an artist of this city, has just finished a portrait in oil of my late father, which I have had painted expressly for presentation to the Philadelphia College of Pharmacy.

It is a copy of a photograph carte de visite, similar to the one in the album of the College, which has always been considered a most excellent likeness of him up to the time of his declining health, two years ago.

This portrait I request of you, dear sir, to present to the College in my name.

Your obedient servant and friend,
A. B. Durand.

The portrait was accepted, and, on motion, the Committee on Deceased Members was directed to acknowledge its receipt, and convey the thanks of the College to Mr. A. B. Durand for the valuable gift, representing, as it does, faithfully, one of our oldest and most valued members.

In connection with this presentation Prof. Procter, on behalf of the Committee on Deceased Members, read an interesting memorial of

ELIAS DURAND.

Elias Durand (*Elie Magloire Durand*) was born in the town of Mayenne, France, on the 25th of January, 1794, second year of the French Republic, in the midst of the most trying times of the Reign of Terror, and was the youngest of fourteen children. His father, André Durand, was Recorder of Deeds at Mayenne, a man much respected, and though a royalist in opinion, he retained his position as recorder through the varying scenes and parties of the Revolutionary struggle and the Empire till his death, in 1810, being forced at times to secrete himself with the funds and records to save them from the party in temporary power.

During the period between 1794 and 1808 young Durand lived in his native town, and being placed in due course at the Collegiate school, passed through the regular studies. About this time his interest was attracted to the study of chemistry, then claiming a large share of scientific attention, which was probably the cause of his becoming a pharmaceutist, as in October, 1808, he was entered as an apprentice to M. Chevallier, of Mayenne, a gentleman of great erudition, an excellent chemist and pharmacien, and well versed in the natural sciences.

From what can now be learned, M. Chevallier was remarkable for the great interest he took in his protegés, who were afforded every opportunity to acquire knowledge and skill in their profession. During the first winter of Durand's apprenticeship he pursued the study of natural philosophy and chemistry; in the spring he applied himself to botany. During the second winter his attention was directed to practical chemistry and the manipulations of the shop laboratory, his preceptor explaining from time to time, in the most lucid manner, the chemical reactions and combinations taking place during the operations carried on. The third winter was devoted to the study of materia medica and pharmacy, in connection with which his preceptor gave him instruction in the collateral branches, mineralogy, geology and entomology.

Elias Durand in after life often spoke of his great indebtedness to M. Chevallier for the varied elementary knowledge in the sciences which he had acquired under his able tuition, and for which he always felt grateful.

In 1812, when Napoleon was preparing the means for his invasion of Russia, every available man was called upon to enroll himself. Young Durand, having completed his apprenticeship, and attained the age of 18 years, became eligible for the army, and, not wishing to be conscripted into the ranks, made prompt application to the Minister of War for the position of *Pharmacien* in the Army, and immediately proceeded to Paris to prepare himself for examination before the Board of Examiners. There he attended the lectures of Thenard, Gay Lussac, Lefevre, Ginault, and a course of lectures on French literature, by the celebrated Andrieux, applying himself with great industry to his various studies. Having received notice from the Minister of War that the 10th of January, 1813, was appointed for his examination, he accordingly presented himself and underwent a strict scrutiny, his replies to the queries being made in writing. The next day he called on M. Parmentier, the Chief of the Pharmaceutical Department of the Army, to whom all the answers of the candidates were submitted, and received the flattering compliment that he had passed at the head of the list.

On the 2d of February he received his commission as *Pharmacien sous aide* in the 5th Corps of the Observation of the Elbe, with orders to cross the Rhine on the 15th of March. Having procured his uniform and accoutrements, he spent a short time with his family and friends at Mayenne, and on the appointed day presented his commission to Marshal Kellerman, commanding at Mayence, who ordered him to proceed at once to Magdeburg, the headquarters of the 5th Corps. He joined a detachment of fifty men from the Military Hospitals at Mayence, commanded by young officers from the Military School of St. Cyr, and was eleven days *en route* to Magdeburg, chiefly on foot, passing Frankfort, Giessen, Marburg, Cassel, Göttingen, Osterode, Goslar and Halberstadt On arriving the men were nearly all entered in the 5th Corps, commanded by Prince Eugene Beauharnais, then numbering 70,000 men. Young Durand was assigned to the 3d Division, under La Grange, near Magdeburg, and continued in the army 14 months, till the abdication of Napoleon, having been present at the battles of Möckern, Lützen, Bautzen, Hanau, Katzbach and Leipzic. During this brief period he experienced many severe hardships incident to a soldier's life, largely increased by the nature of the contest, which was virtually a retreat through a hostile country until they recrossed the Rhine. He was once taken prisoner, at Hanau, but managed to escape.

In his capacity of Pharmacien he was very little exposed to danger, unless voluntarily. His duty was to follow or precede the army, according as it advanced or retreated, and assist in the establishment of military hospitals when needed, so that when the army was in motion his duties were light, and being on horseback during battle, he was frequently an eye-witness to very important movements.

On the 3d of April, 1814, Durand tendered his resignation as *Pharmacien aide major* to M. Lodibert, the Pharmacien in Chief of the Corps (and afterwards President of the Societé de Pharmacie), who urged him strongly to remain in the army, where efficient services had pointed him out for promotion, but he continued firm in his decision.

After a short visit to his home he went to the City of Nantes, well provided with letters, and obtained the situation of head clerk in the store of M. Frètaud, one of the principal apothecaries, where he remained two years. It was at this time that he gave his leisure, in real earnest, to the study of botany, passing all his vacations in botanical excursions with the principal botanists of the place. During a part of this time he directed the Society's laboratory, called *Laboratoire du jardin des Apothecaires*, and delivered a course of lectures on medical botany, during the summer months, to the apprentices in pharmacy, on the different medicinal plants cultivated in the garden. This laboratory was used in common by the principal pharmaciens of Nantes, to prepare their chemicals, and was so conducted that the management went by rotation, the materials contributed by different stores, say for calomel, nitrate of silver, ether or other medicine needed, were made up together, and the products divided *pro rata*. In this way a great variety of costly apparatus was available to each member, quite beyond his ability to possess, and his advanced apprentices were afforded opportunities to assist, and acquire practical knowledge.

On the return of Napoleon from Elba our young pharmacien joined the National Guard against the Royalist party of La Vendeé during the 100 days. After the battle of Waterloo, and Napoleon's final abdication, he returned to his duties at Nantes, but, being strongly suspected of Napoleonic proclivities, he was placed under military surveillance, and compelled to present himself every morning at the police station. This tyrannical order interfered very much with his business duties, caused great annoyance to his employer, and disgust at the treatment he received determined him to abandon his country and seek beyond the Atlantic the freedom denied him at home. Taking passage in the brig "La Nymphe," at Nantes, on April 16th, 1816, he reached New York on the 1st of July following, and at once proceeded to Boston to visit Bishop Chevrus, afterwards Cardinal Chevrus, a distant relative, through whose influence he became acquainted with several scientific men of that city, of whom Dr. Joseph Warren urged him to remain in Boston, where his chemical knowledge would receive encouragement. Mr. Perkins, a druggist, made him an offer to establish a laboratory for medicinal chemicals, with the prospect of a partnership. He accepted the offer, started the works on the French plan, and began the manufacture of Rochelle salt, tartar emetic, spirit and water of ammonia, ether, etc., but, though satisfied with his employer and with the success they were making, he became restless and, much to the disappointment of his new friends, and to the great vexation of Mr. Perkins, he determined to leave Boston for Philadelphia, the city of his choice. Here he took charge of the laboratory of a German named Wesner, where he manufactured chromates from the native ores of Maryland and Delaware. These salts were being successfully made when Wesner, desiring to extend his business, engaged in the preparation of the mercurial salts. This occupation occasioned Durand a spell of illness accompanied by profuse salivation, which induced him to abandon the laboratory and return to his legitimate business, pharmacy.

Mr. Durand next went to Baltimore, with satisfactory letters, and applied to E. Ducatel, a prominent pharmaceutist of that city, who would have engaged him but for his inability to speak the English language, and who advised him to devote himself to the study of that language, which he did for three months, at Belair, with considerable success.

Returning to Baltimore, he hoped to enter Mr. Ducatel's store, but the depressed state of business did not require additional service, and Mr. D. advised him to see Dr. Gerard Troost, of Cape Sable, Maryland (afterwards the first Professor of Chemistry in the Philadelphia College of Pharmacy in 1821), who was engaged in making iron salts, and might employ him till spring, when he hoped to be able to give him a position.

Disappointed but not discouraged, our young adventurer set out on foot to find Dr. Troost, in the midst of winter, the ground covered with snow, and the road unfrequented and difficult to find, owing to dense forests intervening, with only two houses on the road after leaving the vicinity of Baltimore. Having reached the first house noted on his paper about one o'clock, he applied for dinner. The appearance of the inmates was anything but favorable, and the wall of the room was hung with colored pictures of Indian massacres, which impressed his imagination strongly. After paying for the ill-relished meal of pork and beans he continued his forest journey about two miles, when he saw coming towards him some ten or twelve persons, strangely attired, quite different from anything he had seen before. As they came near it became apparent that they were wrapped in blankets, had painted faces, carried bows and arrows, and in fact were the counterpart of the pictures, being the first live Indians he had seen. With his ideas excited by the pictures he had just examined, aided by the uncouth character of the people at the house, he had some doubts of his personal security when thus brought face to face with the red skins in the forest, and for a moment felt undecided whether to advance or retreat, but, going towards them, one of the chiefs came forward and presented a paper for his perusal, which proved to be a recommendation from the President of the United States, stating that the chief and his warriors had been faithful to the country during the war of 1812 on the frontier. Our traveller, greatly relieved from his embarrassment, gave the chief some money, shook hands with each of the troop, gave a hearty hurrah! with his hat off, to which the Indians responded and passed on their way. Continuing his journey the snow increased, night set in before attaining his destination, and seeing a light in the distance, he went towards it for shelter until morning.

He was kindly received, and, on inquiry for Dr. Troost was informed that he was four miles out of his way, and was invited to remain. A death had occurred in the family, many relatives had gathered to attend the funeral on the morrow, and no other place could be offered him for lodging than the room where the dead man was laid out. This was not objected to, and, fatigued with his long journey, our young friend slept soundly, and arose much refreshed. Having attended the funeral, the first country burial he had seen in America, he was greatly surprised at the dinner feast which followed on the return of the guests to the house, and of which he partook, reminding him more of a marriage occasion. His host kindly sent him to Dr. Troost's with a negro guide.

Mr. Durand was kindly received by the Doctor, who, however, did not need his services, as the rough processes of his copperas manufacture were chiefly conducted by negroes, but invited him to remain and keep him company as his guest, being much in need of social intercourse in his isolated home. He found Dr. Troost a learned chemist, mineralogist, and geologist, with a general acquaintance with the sciences, and when urged, accepted the hospitable invitation to remain until the end of winter.

About this time he received proposals from Mr. Ducatel to take charge of the pharmaceutical part of his business, and on the 5th of April, 1817, he entered on the duties of his new position. His professional knowledge was appreciated, business flourished, his employer was well satisfied, and extended toward his new clerk many acts of kindness as well as his love and affection. Mr. Durand often spoke of the social advantages he received whilst resident with Mr. Ducatel, among which was meeting with eminent Frenchmen in exile, It was during his stay in Baltimore that he began to study American botany and to form the nucleus of the great herbarium which he afterwards acquired.

On the 20th of November, 1820, he married the daughter of his friend and employer, Miss Polymnia Rose Ducatel, who died on the 18th of February. 1822, leaving an infant daughter, who lived to the age of 14 years.

In May, 1823, E. Ducatel retired from business, leaving his establishment to his son Jules Ducatel (afterwards Professor of Chemistry in the University of Maryland), and his son-in-law, E. Durand, who entered copartnership as E. Ducatel & Sons, which continued only a year, Durand retiring, with the view of establishing himself in Philadelphia. He also determined to visit France, to procure his *materiel*, and in July, 1824, he left New York for Havre in the ship "Sylvie de Grace," arriving on the 14th of August. His time was employed in selecting stock, apparatus and bottles (which were duly labelled for use and of the heavy French pattern), together with everything needful for a first-class French "officine," and returned in the same vessel to New York on April 22d, 1825.

The house then existing at the south-west corner of Sixth and Chestnut streets, where the "Ledger" office now stands, was occupied by Alderman

Barker, who, for a consideration of $500, ceded to Durand a ten years' lease. The necessary alterations were rapidly pushed forward, and on the reception of his goods he fitted up the store at considerable expense, using French glass ware, porcelain jars, mahogany drawers and marble counter, in a style unique and attractive in that day. But the most important part was the stock of drugs and chemicals he had selected, including many novelties, and the apparatus for making and vending carbonic acid water.

Coming well recommended from Baltimore, as well as from abroad, the principal physicians, Physic, La Roche, Monges, Bache, Jackson, Griffith, Dewees and others were prompt in patronizing the store, and its enterprizing proprietor soon had a flourishing business.

On the 25th of October, 1825, Mr. Durand married a second time, to Miss Marie Antoinette Berauld, daughter of a merchant of Norfolk, Va., one of the French refugees from the St. Domingo Insurrection. (He had four children by this marriage, all of whom died young, except his son, Alfred B. Durand, who survives him.)

In 1825 he was elected a member of the Academy of Natural Sciences of Philadelphia. This brought him into contact with men of science and opened a field of usefulness for his botanical talents, which he cultivated with great zeal and success, and corresponded with many botanists in Europe, by which his collection of plants was greatly extended. In the same year he became a member of the Philadelphia College of Pharmacy, and in 1832 was elected a corresponding member of the *Société de Pharmacie* of Paris, and contributed valuable original articles to the Journals of both Societies. In fact he wrote the first article of the first regular series of the *American Journal of Pharmacy*, and others are scattered through the following ten volumes. In 1829, in connection with Dr. Togno, he translated and published Edwards and Vavasseur's Manual of Materia Medica and Pharmacy, to which he made many additions of a pharmaceutical character, before the publication of the United States Dispensatory.

At the period when Durand opened his store French Pharmacy stood confessedly by far in advance of that of all other countries, whilst his thorough education and recent visit to France for stock, etc., gave him such great advantages that his store became an important centre of pharmaceutical information, which directly and indirectly had much to do with the introduction of scientific pharmacy into Philadelphia, and through this College, its Journal and graduates into the United States. Many of the finer medicinal chemicals were made in this country first by Durand, which gave him a prestige in that direction, and his great skill as a pharmaceutist, his untiring industry, close attention to business and social and scientific qualities attracted the most eminent physicians to his store, which became the daily resort of such men as Drs. Horner, McClellan, Mitchell, Meigs, Mütter, Bache and Goddard. The possession of a good library, and the monthly reception of important foreign journals, enabled him to study new medicines promptly; and, in looking back, it will be found that many new preparations, as solution of iodide of iron, Kermes mineral as now made, iodide of arsenic, iron by hydrogen, etc., were first introduced through his store. This devotion to his profession soon rendered "Durand's drug store" well known to the general public, and gave a great impetus to his prescription business.

Durand took pains in training his apprentices, and some of our best pharmaceutists emanated from his counter. He required of them daily study of articles in the Dispensatory, and it was his custom to examine the packages of drugs for stock when received, making it the occasion to point out to his boys and assistants the faults and merits of the articles. Looking at Pharmacy as a profession, requiring education and training for its success, he taught them to respect their business, and always manifested a warm interest in their progress. One of his éleves has said "he never required those in his employ to do that which he would not willingly do himself, and his intercourse with them was not that of master, but of a genial friend." The writer remembers gratefully when, in early life, he was engaged in investigations under great disadvantages for want of accurate instruments, his friend Durand imported a set of French metrical weights, and presented them to him with a word of encouragement.

In 1835 Durand was the first to introduce the bottling of mineral waters in this country, and opened a large establishment in Sixth street above Arch. The apparatus for manufacturing the waters, and especially that part of it for bottling under pressure, was of his own invention and superior to any then in use in France. He afterwards sent the latter to the Société de Pharmacie, and it was adopted into use in Paris. He also at this time extensively manufactured vinegar from cider by a quick process, by which air was forced through the cider and rapidly acetified it. This business was in full and successful operation when the money crisis of 1837 prostrated the commercial community, and with it this branch of his business, with great loss to the manufacturer, who afterwards adhered closely to his legitimate profession until his retirement.

About this period, and for many years after, various valuable contributions to American pharmacy came from Durand's store, through the late Augustine Duhamel, who was a protegé of Durand and identified with his store, having been for many years his chief clerk. The *process of displacement*, now called percolation, was there first introduced in this country by Duhamel, and his active pen placed on record, in the *American Journal of Pharmacy*, from vol. vi to vol. xviii, many valuable evidences of his industry and research.

A peculiarity of Durand's business was the number of specialties he introduced, original or of foreign origin, partially growing out of the patronage of particular physicians. His long experience had given him considerable knowledge in therapeutics, and his medical friends willingly availed themselves of his hints, in his efforts to render their prescriptions elegant and acceptable, as well as efficient compounds.

The relations of Dr. Samuel Jackson with Durand have been much misunderstood, and the cause of jealous and unkind remarks, and at one time even influenced the action of the College of Pharmacy in reference to that physician. Dr. Jackson was remarkable for his mental activity, and having for six years been professor of Materia Medica in our college, and one of its earliest members, had a *penchant* for new remedies. His patronage of Durand appears to have been entirely influenced by his respect for the talents of the latter as a pharmaceutist and chemist, and by the valuable suggestive aid received from him when called upon to meet emergencies in therapeutics. Dr.

Jackson would call in and say, "Friend Durand, I would like to use such and such medicines in combination; now do your best to make me an efficient preparation as agreeable as possible;" Mr. Durand would then study out the practical difficulties and get the medicine into shape. In this way many preparations came into use in Philadelphia, first in small quantities, but gradually, by the frequent prescribing of them by Dr. Jackson, became popular medicines, sold in large quantities with printed labels. The use of Dr. Jackson's name in connection with some of these preparations was an accidental occurrence, arising from the patients of that physician asking for them as "Dr. Jackson's"—a course perhaps encouraged by the extreme liberality of Dr. Jackson—but, when too late to recall it, Mr. Durand deeply regretted having unintentionally involved his friend and patron in a question of professional ethics. Among these may be mentioned "Jackson's Pectoral Syrup," "Jackson's Pectoral," and "Ammonia Lozenges," "The Saline Aperient," a compound of tartrate of soda, bicarbonate of soda and cream of tartar with oil of lemon, "Narcotic Cigarettes," "A peculiar denarcotized laudanum," the forerunner of "McMunn's Elixir," "Syrup of Phosphate of Lime," and "Compound Mixture of the Phosphates," afterwards made into a syrup, came into use from his prescriptions, at Durand's. Phosphate of potash was here first made for medicinal use for Dr. Jackson, for the "compound syrup of the phosphates," which still continues in use in modified forms as made by Blair, Parrish and others. Extractum sanguinis, made from the blood of the ox deprived of its corpuscles, was also a suggestion of Dr. Jackson. The "Powder" and "Elixir" of Dr. Castillon, of Cuba, Cucumber ointment, Lartigue's pills and various noted French preparations, as Baume Tranquille, Baume Genevieve, Onguent de la Mére and Leroy's medicines were introduced by Durand, and he was the first to import and dispense "Quevenne's iron by hydrogen" in pills, at the suggestion of Dr. Meigs, who prescribed them in large quantities in a great variety of cases.

Through all the varied engagements, disappointments and losses of our friend, his interest in botany never wavered, and appears to have been a source of great pleasure and satisfaction. In 1837 he made an expedition to the Great Dismal Swamp of Virginia, where he acquired many interesting specimens His friendly relations with Joseph Bonaparte (Count Souvilliers) caused him often to visit the fine country seat of the latter, at Bordentown, famous for its botanical treasures, where he met and was useful to many of his countrymen in exile in their inquiries regarding American institutions. He spoke of the Count as a man of mild and polished manners, unaffected, and gifted with a most agreeable flow of language. Possessing great erudition, he yet suited his conversation to the one conversing with him, making intercourse with him pleasant and agreeable, and he seemed to be perfectly familiar with all the natural sciences.

In 1840, when the Philadelphia College of Pharmacy was invited to assist in the revision of the U. S. Pharmacopœia, Durand was one of the Committee appointed to that service, in which he took part and contributed valuable suggestions to the work, several of which yet remain after three successive revisions. The writer served with him on this Committee, and well remembers his valuable labors and counsel given on that occasion.

In 1844 Durand was elected Vice-President of the College of Pharmacy. In 1851 Mrs. Durand, who, during twenty-six years had been his companion and friend, died at their home on Ninth street, which event induced him to retire from business in favor of his son, and devote his leisure time entirely to botanical studies. Though so long a resident of the United States, and possessing an excellent command of the English language so as to write it fluently and correctly, his conversation was always marked with a French accent, and sometimes with French idiom. He was a good Latin scholar, wrote with great facility in a close set hand-writing, and was the author of several biographical and scientific memoirs. In 1854 he was elected a member of the American Philosophical Society, and was subsequently one of its curators.

In 1855 he published, in connection with Dr. Hilgard, a memoir on the plants collected in the expedition of Lieut. R. Williamson, U. S. Engineer, to California, and another, called "*Plantœ Prattenense*," on an extensive collection of plants made by Mr. Pratten in Nevada and adjacent territory. In 1856 he published an enumeration of the plants collected in Dr. Kane's first expedition to the Arctic regions, in the Journal of the Academy. About this time he wrote and read before the Philosophical Society a biographical memoir of the late François André Michaux, the author of the " Sylva Americana," who willed a sum of money for the establishment of a park of American forest trees, which is now existing in Fairmount Park, and known as the " Michaux Grove." In 1857 he commenced the work of separating the North American plants in the herbarium of the Academy of Natural Sciences, and forming them into a distinct collection, which occupied him several years, often working four hours daily in the botanical room of the Academy. His labors in connection with this valued institution will, however, be more fittingly enlarged upon by a special memorialist appointed by the Academy. In this year he was elected an honorary member of the American Pharmaceutical Association. In 1859 he published a memoir entitled, "A Sketch of the Botany of the Basin of the Great Salt Lake of Utah."

In 1859 his friend, Dr. Thomas Nuttall, author of the three volumes in continuation of Michaux's Sylva and other works, and so many years the botanist in chief of the Academy of Natural Sciences at Philadelphia, died in England. The memoir written of him by Durand is said to be one of the best notices of that distinguished botanist and ornithologist, of whom he was the successor in the botanical department of the Academy.

In 1860 Durand visited France a second time, and derived great pleasure from intercourse with his relatives, and many friends who had been with him in "*The Grand Army*." He also for the first time visited England, and was greatly pleased with the gardens and museums of London and vicinity. Whilst in Paris he had occasion to examine the herbarium of the " Garden of Plants," and finding the collection of North American plants very incomplete, he determined to remedy the deficiency by sending over his own fine collection. Ascertaining, however, on his return, that he could yet make valuable additions to his collection, rendering it more complete, he subscribed to all the botanical expeditions, and set to work himself to collect, making excursions every summer, returning always with rich harvests of plants. Finally, in 1868, after putting his herbarium in order by arranging the new specimens in proper position, he packed the whole carefully and shipped it to France, following it on the 26th of June, in company with his son and daughter-in-law, in the "Ville de Paris." Durand's collection, the work of many years, contained over 10,000 species and over 100,000 specimens from all parts of North America. This munificent gift to his native country was fully appreciated, especially by the professors at the Garden of Plants Museum, where it has been arranged in a special gallery, and labelled "*Herbia Durand.*"

About the year 1858 Mr. Durand presented to the Philadelphia College of Pharmacy a general herbarium of about 12,000 specimens, which form the nucleus of the present collection in its museum.

After his return from France in 1869, he wrote an elaborate article on the genus *Vitis*, of North America, and the relation of the cultivated varieties of the grape to the natural species, together with remarks on the wines made in the United States, and sent it as a contribution to the proceedings of the Linnean Society of Bordeaux, France. This essay attracted considerable attention abroad, and was reprinted by the "Société d'Acclimatation," of Paris. He subsequently was elected to membership by both societies.

As a citizen, Durand took but little part in political or municipal affairs. His social and scientific qualities endeared him to all who came in close contact with him. One who knew him intimately says "he was a man of generous impulses, and his private charities were numerous." He was an active member of the French Benevolent Society, of Philadelphia, took an interest in rendering it available to his needy countrymen in this city, and remembered it in his Will.

After his last return from Europe our friend continued his interest in botany in favor of his collection at Paris, but many months ago, feeling that age was advancing, and that he had worked industriously and effectively during his long life, he gradually relinquished his scientific engagements. Finding his bodily powers and faculties depreciating, he quietly retired from his usnal walks, and after a season of depressed intellectual vigor, he slowly faded away in the 80th year of his age, and died on the 14th of August, 1873, at his residence on Broad street, Philadelphia, honored and respected by all who knew him.

The reading of this paper was listened to with attention and elicited remarks from several members, among whom were Prof. Procter, Chas. Bullock, Robert Shoemaker, Samuel S. Garrigues and William C. Bakes. Reference was made to his methodical habit of instructing the young men in his employ in all the minutiæ of his business; of his popularity with certain physicians because of his tact in combining new remedies with compatibles in an elegant manner suitable for administration, and of his general scientific attainments in his profession, each one presenting some feature of his life and character worthy of imitation; some habit or custom in his business which might with propriety be emulated, and all uniting in the fact that the College has lost one of its brightest ornaments, and science a distinguished votary.

Prof. Procter read the following paper on the decease of John H. Ecky, a member of the College, which was accepted and referred to the publishing committee.

John H. Ecky, formerly an active member of this College, died in Philadelphia on the 13th day of July, 1873, aged 61 years. He was the son of Anthony Ecky, one of the founders of our College, at that time a wholesale druggist, doing business at the north-east corner of Third and Walnut streets.

John H. Ecky served his apprenticeship to the drug and paint business with the late Jacob Bigonet, also a member of this College, in Lombard street below Sixth, with whom he afterwards entered into co-partnership, under the firm of J. Bigonet & Co., which continued several years.

Mr. Ecky at one time took much interest in this College, contributed to the Journal, and was a frequent attendant of the pharmaceutical meetings. He was warm-hearted and generous, had had a fair education, and was a reputable apothecary.

Charles Bullock referred to the decease of Dr. Frederick A. Keffer, a member of the College, formerly from Philadelphia, but late a resident of New Orleans, where he died recently after a short illness.

Charles Bullock called the attention of the College to the recent ruling of the Commissioner of Internal Revenue relative to the stamp tax on medicinal preparations, contrasting it with former rulings, and pointed out its inconsistency herewith.

On motion of Jas. T. Shinn, a committee of two, consisting of Robert Shoemaker and Joseph P. Remington, was appointed to proceed to Washington to confer with the Commissioner of Internal Revenue on the subject, and to endeavor to have the late ruling reversed, if possible.

Mr. Bullock offered the following preamble and resolutions for the total abolition of the stamp tax on medicines, which, on motion of A. B. Taylor, were adopted, and the Corresponding Secretary was directed to send a copy to each of the Colleges of Pharmacy and Pharmaceutical Associations in the United States.

Whereas, The stamp tax imposed by the internal revenue laws on medicines, as detailed in schedule C of the code, was, in the opinion of this College, intended to apply only to preparations known as "proprietary"—the term "proprietary" having long been defined as "a peculiar or exclusive right of possession;" and,

Whereas, Conflicting decisions have from time to time been given regarding the class of medicines coming under the operation of the stamp tax, causing great confusion, impeding business, and rendering druggists and manufacturers disposed to a conscientious fulfilment of the provisions of the law, liable to great annoyance, and often penalty, by reason of decisions of the department at variance with the opinions and long continued practice under former Commissioners of the Internal Revenue, and,

Whereas, the necessity for the continuance of the stamp tax on medicines appears questionable as a source of pecuniary revenue to the Government; therefore

Resolved, That this College, in its corporate capacity, do petition Congress, at its next session, to abolish such part of the internal revenue laws as relates to a stamp tax on medicines.

Resolved, That we invite the co-operation of the Colleges of Pharmacy and Pharmaceutical Associations in the United States to effect this purpose.

This being the Semi-Annual Meeting, an election for eight Trustees and a

Committee of three on Deceased Members was ordered. S. Mason McCollin and Joseph P. Remington acting as tellers, reported the following gentlemen elected to the respective duties.

Trustees.—Dr. Wilson H. Pile, Alfred B. Taylor, Evan T. Ellis, S. Mason McCollin, Charles Bullock, William C. Bakes, William McIntyre and Albert P. Brown.

Committee on Deceased Members.—Wm. Procter, Jr., Charles Bullock and Alfred B. Taylor.

Then on motion adjourned.

William J. Jenks, *Secretary.*

A Special Meeting of the Philadelphia College of Pharmacy was held October 21st, 1873, at the College Hall, Dillwyn Parrish, President, in the Chair; 39 members present.

The object of the meeting was to hear a report of the Committee appointed at the Semi-Annual Meeting in September to visit Washington for the purpose of endeavoring to effect a change in the ruling of the Commissioner of Internal Revenue relative to the stamp tax on medicines.

Joseph P. Remington, on behalf of the Committee, read an interesting report, the substance of which is embodied in the following abstract. The Committee, in conjunction with a similar one appointed by the Drug Exchange, visited the Commissioner of Internal Revenue at Washington on the 30th ult., presented their views and stated the inconsistency, in their opinion, of the recent ruling with the decisions of previous Commissioners, and endeavored to effect a return to the original rule that had been followed since the passage of the law. They presented a number of cases for his opinion as to the requirements of the law regarding the necessity of a stamp when put up in packages ready for sale, such as laudanum, paregoric elixir, hive syrup, etc., with their respective labels specifying the dose to be given. The Commissioner called to his aid his assistant, and the two expounded the law, in accordance with their view of the matter, generally, however, at variance with the views entertained by the Committee, and sometimes at variance with one another, showing the whole subject to be a matter the depth of which was beyond their ability to fathom. The Commissioner acknowledged that the execution of the law gave him a great deal of trouble, and signified his willingness to assist in having it repealed. He was asked by the Committee if he had called in any experts to assist him in his decisions, and his reply was that he felt fully competent to decide upon the question. His mind seemed made up to carry out his recent ruling in full, but not until the trade had been made acquainted with the requirements of the department.

He explained the matter more fully by saying that "where physic and physician were supplied to the patient at the same time, as was the case where labels were used giving the name, dose and directions of the medicine, it was plain that a stamp was required," and he therefore ruled that the dose and directions were sufficient to make *any* medicine stampable; as instances a number of labels for special articles were cited, such as Epsom salts, one dose; castor oil, one dose; "both require stamps," was the reply. Seidlitz powders, On this label the Commissioner and his assistants differed in judgment; one said that the ordinary direction did not indicate the dose, while the other contended that it did, and must be stamped.

The Committee, at last, finding it was useless to prolong the discussion, retired, satisfied that the trade must be prepared to meet the requirements of the recent letter of instructions issued by the Commissioner, until a modification of the law or its total repeal can be effected.

The report was fully considered and accepted, and will appear in full in the next number of the Journal.

Charles Bullock read a portion of the recent report published by the Drug Exchange. He clearly demonstrated the absurdity of the Commissioner's opinions on several points, and particularly in relation to the difference between a printed and a written label with directions, the first requiring a stamp and the latter being exempt.

The whole matter was fully discussed by Messrs. Shoemaker, Blair, R. C. Davis, W. B. Webb and others, each one presenting some embarrassing feature of the operation of the law, which would make it intolerable to the whole trade, and all were of opinion that nothing short of its repeal, so far as it relates to a tax on medicines prepared from published formulæ, would be satisfactory.

Mr. Vogelbach offered a resolution appointing a Committee to bring forward a test case for legal decision in the U. S. Court, supporting it with the argument that we had better meet the case at once.

Mr. A. H. Jones advocated no action in a legal point of view, but thought agitation of the subject desirable, both in the Journal of the College and in the public press. This view was coincided with by Prof. Procter, who advocated delay until after the meeting of Congress, when it was hoped that by properly presenting the case to the members of that body, a repeal of the law might be effected.

Mr. Vogelbach's resolution was then adopted as follows:

Resolved, That a Committee of this College be appointed to bring forward a test case under the recent ruling of the Commissioner of Internal Revenue before the U. S. District Court for the Eastern District of Pennsylvania, for a decision as regards the proper interpretation of Schedule C of Act of July 13th, 1864, and other sections applying to said schedule and amendments thereto, if in their opinion it is advisable to do so.

The Chair appointed Robert Shoemaker, Joseph P Remington, Charles Bullock, James T. Shinn and Herman A. Vogelbach, the Committee; and the Meeting, on motion, added the President to their number.

Then on motion adjourned.

William J. Jenks, *Secretary.*

Minutes of the Pharmaceutical Meeting.

A pharmaceutical meeting was held on the afternoon of October 21st, 1873, in the hall of the College. Present, twenty members. Dillwyn Parrish, President, in the chair.

Owing to the lateness of the hour at which the meeting was convened, on account of a preceding meeting occupying so much of the time, the number of members remaining was small.

Prof. Maisch read a letter from Clemmons Parrish, tendering his resignation as Registrar, his present engagements preventing his attending to the duties of the office. On motion, his resignation was accepted.

This being the regular time for electing a Registrar, as provided in the by-laws, Joseph P. Remington was elected to fill the office.

Richard V. Mattison read a paper on Fluid Extract of Ipecac,* in which he suggests an improvement in the present officinal formula, by depriving the percolate of the peculiar substance which causes turbidity, and decreasing the proportion of glycerin 12½ per cent.

Dr. W. H. Pile called attention to a sample of adulterated oil of gaultheria, which seems now to be pressing on the market. The adulterating substance he found to be chloroform, and the means adopted for detecting the fraud were, first, by taking the specific gravity, and, secondly, noting the boiling-point. The specific gravity of true oil of gaultheria is 1·18, whilst that of the sample in question was 1·24. The boiling-point of the true oil is 400° F., whilst the adulterated oil boiled actively at 200° F. By shaking the adulterated oil in a test-tube, after slightly warming, the odor of chloroform is distinctly apparent. He ascertained that this impurity existed in the oil in the proportion of 1 part of chloroform to 4 parts of oil, and his mode of arriving at the quantitative estimation consisted in mixing certain proportions of chloroform and oil together until he obtained the same specific gravity as the adulterated sample had.

Charles Bullock stated that he had met with two cans of the oil, which he thought probably belonged to the same lot as that mentioned by Dr. Pile, and he exhibited a very neat and convenient little apparatus for detecting and separating the mixed liquids by fractional distillation. It consisted of a small glass flask, into which the oil was poured; a bulb-like stopper, having a tubulure at the top, which had a rather long tube leading from it at a similar angle to that usually seen in alembics, and a thermometer, which passed through the tubulure and into the bulb of the stopper. If heat is now applied to the flask, the temperature of the vapor which fills the bulb and is being condensed can easily be read off. By this method he was able to separate the chloroform from the oil, and he also found that it contained a very large portion of oil of sassafras. The manner in which the oil had been made seemed to have been: Take 4 or 5 lbs. oil of sassafras, 1 lb. oil of gaultheria, and chloroform sufficient quantity to bring up the specific gravity to the right point.

Prof. Maisch, speaking of oil of gaultheria adulterated with oil of sassafras, said that when the adulterated oil is treated in the cold with commercial nitric acid a deep red resinous mass separates, whilst the pure oil of gaultheria is not colored by it.

Charles Bullock reported that, having some suspicions that the heavy lubricating coal oils were used for the purposes of adulteration, he took the specific gravity of one of the most dense in the market, and found it to be only ·883; he regarded them on this account unfit for the purpose.

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* See page 481 of this number.

Prof. Maisch exhibited three samples of Pareira brava, two of which differed from the kind usually seen in commerce of late years, and a sample of the real Pareira, which has been proved by Mr. Daniel Hanbury to be produced by *Chondodendron tomentosum.* The three spurious pareiras, all of which were mentioned in Mr. Hanbury's paper, were the usual commercial variety, with the layers of wood in more or less excentric layers; a sample of a bright yellow color internally and with the wood developed almost altogether in one direction, and a sample nearly tasteless, the wood of which is in more concentric layers; the sources of these three kinds are unknown, but all are derived from plants of the order Menispermaceæ.

Mr. Gaillard spoke of having received a sample of what purported to be French quinine, from a friend in the South, who had been offered the article at a very low price, and had sent him a portion to ascertain why it could be sold so low. It proved to be the old fraud—muriate of cinchonia.

Prof. Maisch read an extract from the "Circular of the Philadelphia Drug Exchange" in relation to this subject, as follows:

> *Cinchonia Muriate.* From the "Druggists' Circular," New York, October, 1873, we extract the following statement, reported in the Transactions of the American Pharmaceutical Association at Richmond:
>
> "Prof. Maisch drew attention to the fact that very large quantities of muriate of cinchonia had been put up in the style of French quinine, and having an imitation of Pelletier's label upon it, and that it had been extensively introduced in the Southern States.
>
> "Dr. Squibb said that some of the manufacturers of quinia were in part responsible for this attempt to defraud the people, as they in the course of their manufacture accumulated large quantities of the cinchonia salts, and they disposed of them indiscriminately to any who applied for them."
>
> We take occasion to say that, so far as *American* manufacturers of sulphate of quinia are concerned (1). they do not dispose of the cinchonia salts indiscriminately to any who apply for them, but only to regular customers who pay for them; and (2), so far from being responsible for this attempt to defraud the people, they purposely avoid handling *muriate of cinchonia*—they do not make the article.
>
> We consider that this statement is eminently due to our friends who make sulph. quinia here, for they have not only declined making, but refuse to deal in, the article of *muriate of cinchonia.* on account of its close resemblance to *sulphate of quinia.*
>
> *Muriate of cinchonia* is largely sold in *Europe*, but not in this country, so far as sulph. quinia manufacturers are interested.

It was suggested that advantage might be taken of the condition of affairs to ascertain what virtues muriate of cinchonia possesses as an antiperiodic.

Jos. P. Remington introduced the subject of Diluted Phosphoric Acid, and gave the results of an experiment based on a fact mentioned to him by Prof. Maisch, in which it was shown that diluted phosphoric acid, made from the phosphorus direct, according to the U. S. Pharmacopœia, would make a clear solution when mixed with an equal quantity of tincture of chloride of iron, whilst that made from the glacial phosphoric acid produced a precipitate when similarly mixed.

Prof. Maisch stated that it required repeated treatment with nitric acid in the manner laid down in the second formula of the Pharmacopœia in order to thoroughly convert the monobasic into the tribasic variety.

The meeting then adjourned.

JOSEPH P. REMINGTON, *Registrar.*

Pharmaceutical Colleges and Associations.

VERMONT PHARMACEUTICAL ASSOCIATION.—The fourth annual meeting was held at Burlington, Vt., Sept. 24th and 25th, President Frederick Dutcher in the chair, A. W. Higgins, Secretary. After considerable discussion on the employment of the English language in prescriptions, the Association voted by a large majority in favor of the Latin. A committee for nominating officers was appointed, when the President delivered his annual address. An invitation was received from Messrs. Wells, Richardson & Co. for the members with their ladies to participate in an excursion to Plattsburg.

At the afternoon session the Treasurer's report was read, after which Prof. Seeley, of Middlebury College, delivered an address, dwelling on the importance of pharmaceutical education. The establishment of a pharmaceutical school was referred to a special committee for consideration, and report next year. The following officers were elected for the ensuing year: President, L. E. Sherman, Ludlow. Vice-Presidents, C. C. Bingham, St. Johnsbury; Dana J. Morrill, Swanton. Secretary, A. W. Higgins, Rutland. Treasurer, Collins Blakely, Montpelier.

The Association adjourned until the next morning, an account of which session has not been received.

THE TENNESSEE PHARMACEUTICAL ASSOCIATION was organized at the City of Nashville Oct. 9th and 10th. A constitution was adopted and committees were appointed on legislation and on code of ethics. A seal was also adopted. The following officers were elected: President, J. C. Wharton, of Nashville. Vice-Presidents, J. G. Rawlings, of Chattanooga; R. D. McCauly, of Clarksville, and J. B. Haddox, of Nashville. Secretary, Benj. Lillard, of Nashville. Treasurer, R. E. Page, of Nashville. Committee on Papers and Queries, W. G. Ewing, M. C. Currey, E. C. Laurent. Business Committee, R. H. Gordon, J. Richards, W. H. Smith. Committee on Legislation, W. D. Kline, J. R. Harwell, W. H. Wharton.

Prof. Lillard read a paper on Apprentices, which was ordered to be printed in the Nashville daily papers.

Jas. M. Safford, M.D., Ph.D., and J. Berrien, Lindsley, M.D., were elected honorary members, and after transacting some business of minor importance the Association adjourned, to meet again in Nashville on the third Tuesday of May, 1874.

THE TENTH ANNUAL MEETING OF THE BRITISH PHARMACEUTICAL CONFERENCE was held at the Church Institute, Bradford, Sept. 16th and 17th, Mr. H. B. Brady, F.L.S., F.C.S., President; Prof. J. Attfield, Secretary. Twelve local associations were represented by delegations, but the attendance of members was hardly as numerous as on former occasions, owing to the increased hotel charges during the sessions of the Conference of the British Association for the Advancement of Science, which, as usual, have been held in the same city and about the same time. The album containing pictures of some of the officers and members of the American Pharmaceutical Association, which had been collected for this purpose by the Committee on Photographic Album of the latter Association, was laid before the Conference on the second day, while the letter announcing it was read at the first session, and a vote of thanks passed on motion of Mr. J. Williams. A resolution was passed directing a message of fraternal greetings to be sent to the American Pharmaceutical Association, then in session at Richmond. A number of new members were elected, after which Mr. F. Baden Benger read the report of the Executive Committee, and Mr. J. F. Schacht the Treasurer's report. A resolution increasing the annual dues to 7s. 6d. was carried unanimously. The President then delivered his annual address, reviewing the origin of the Conference and the labors at the various meetings, the consolidation of several pharmacopœias into one for Great Britain and one for Germany, the introduction of new remedies and the revival of older ones, the acclimatization of the cinchonas into the East Indies, the experiments with various new remedies, and the pharmaceutical examinations in various countries, and closed with eloquent tributes to the memories of John Cargill Brough and Edward Parrish. The address is an excellent document, well calculated to assist in raising the status of pharmacy, and deserving the perusal of every pharmacist..

A paper read by Mr. Hampson suggested the propriety of physicians appending to any unusual dose ordered by them, a mark, indicating that in ordering such a dose, no mistake has occurred. The discussion following the reading of this paper resulted in the appointment of a committee whose report was directed to be communicated to the medical profession.

Several very interesting and important papers were read and freely discussed, which we hope to be able to lay before our readers.

Mr. T. B. Groves, of Weymouth, was elected the successor of Mr. Brady in the Presidential chair. The next meeting, in 1874, will be held in London, and Mr. M. Carteighe has been elected Local Secretary.

The annual dinner of the Conference took place, at the Victoria Hotel, on the evening of Sept. 16th, Mr. F. M. Rimmington in the chair.

Pharmaceutical Society of Paris.—At the session of Aug. 6th, Mr. Grassi presiding, Dr. de Vrij communicated a note on the quantitative examination of cinchona barks; it was accompanied by a specimen of *Cinchona officinalis* and a sealed package indicating its composition. Mr. Boudet had received from Mr. Guilliermond *fils* a memoir on the assaying of cinchonas, in which he related the labors of his father on that important subject. A committee, consisting of Messrs. Baudrimont, Marais, Jungfleisch, P. Wurtz, St. Martin and P. Blondeau, was appointed to report on the comparative value of the processes suggested by Guilliermond, de Vrij and Carles. In a letter to Mr. Jungfleisch, de Vrij claims for Mr. Delondre the discovery of quinidia.

Mr. Buignet exhibited crystallized protiodide of mercury, prepared by Mr. P. Yvon, and read a paper detailing his process, which consists in heating mercury and iodine, in equivalent proportions, to not over 250° C.; the hot crystals are red, but become yellow, with a tint of orange, on cooling. Heated to 70° C., they become reddish, the color deepening with an increase of the temperature; at 220° they are of a beautiful garnet red, but become yellow again on cooling. They commence to sublime at 190°, fuse at 290° to a black liquid, which boils at 310° C. When rapidly heated a decomposition takes place, metallic mercury is given off, and a yellow sublimate of oxyiodide of mercury is obtained.

Various drugs were presented, after which Mr. Boudet gave a summary of the deliberations of the Academy of Medicine on the queries submitted by the Secretary of War in relation to the military pharmacists; the discussions had resulted in the adoption of the following:

(1). The proposed fusion of medicine and pharmacy should be rejected as prejudicial to the interests of the army.

(2). The actual organization of the military health service is not in accordance with the wants and interests of the army; the service should be placed under the direction of a competent chief, taken from its members.

The following proposition was rejected by the Academy of Medicine, by a large majority:

(3). The autonomy of the health service requires, as a logical consequence, the subordination of pharmacy to medicine in the army.

A well-deserved vote of thanks was passed to Mr. Poggiale for his well-directed efforts in defending the cause of military pharmacy. Mr. Poggiale, who was present at the meeting, in thanking for the compliment, said that this vote should have included all who defended pharmacy, so unjustly attacked on this occasion, and particularly Messrs. Bussy, Dumas, Boudet and Gobley.

The pharmaceutical service in the French army, we believe, is the only one in which the just claims of pharmacy are recognized; and the Paris Pharmaceutical Society as well as the Academy of Medicine deserve the thanks of the pharmacists of all countries for resisting an attempt to make undone what the history of the French service since the beginning of this century has proved to be a wise arrangement, in which other nations would do well to follow such a proud example.

The German Apothecaries' Society held its second annual meeting, Sept. 2d, in the City of Cologne, Dr. Schacht, President; Messrs. Endenthum and Nienhaus, Recording Secretaries. The annual report of the President gave an account of the activity of the directory during the past year, and stated that the membership had increased from 1472 to 2600 during the last year. After disposing of the financial reports, a resolution by Prof. Reichardt was passed, declaring the chemical examinations of waters in their sanitary relations to be an important object of the apothecaries of Germany, and requesting them to take part and further these measures as much as possible. Resolutions were likewise passed favoring the establishment of one scientific organ of the Ger man Apothecaries' Society, and the abrogation of the contract with the "Pharmaceutische Zeitung;" also to empower the directory to confer with the War Department, with the view of regulating military pharmacy.

During the second session Prof. Dragendorff, of Dorpat, delivered a lecture on some important proximate principles of vegetables, and on the qualitative and quantitative examination of adulterations of volatile oils with cheaper oils. Prof. Reichardt and Mr. Rostel were elected delegates to the meeting of the German Sanitary Union, at Frankfort.

After the filling of vacancies in the directory various scientific subjects were discussed. Mr. Hildebrand spoke on explosions by mixtures of chlorinated lime, and on soluble pepsin; Albers, on the German Pharmacopœia; Drs. Brunnengraeber, Schacht and Werner, on the necessity of rectifying chloroform which is to be used for inhalation, to free it from muriatic acid; Dr. Reichardt, on hyoscyamia and atropia, and their products of decomposition under the influence of alkalies and acids.

The Society adjourned finally after having selected Munich as the place for holding the third annual meeting.

The Twelfth Annual Meeting of the General Austrian Apothecaries' Society was held, in Vienna, Sept. 15th and 16th. At the first session the annual report of the Directory was submitted, the Treasurer's report read, and the publication of a text-book on pharmacy resolved upon. The subject of an international Pharmacopœia was discussed, and the labors of the Paris Pharmaceutical Society in this direction related. Dr. Goddefroy delivered a lecture on the progress of chemistry as exemplified by the products exhibited at the World's Exposition in Vienna, which was visited by the Society in a body during the afternoon, Dr. Goddefroy and Mr. Klinger acting as guides.

The following officers were elected at the second session: Messrs. Schiffner, Fausner and Von Waldheim, Directors; Simoni, Treasurer; Ferd. Kwisda, Secretary. Mr. Heindl made a donation of 100 florins to the Society. Messrs. Mall and Stapf made valuable donations to the Museum. The next annual meeting will again be held in Vienna.

The International Medical Congress lately held in Vienna declared in favor of compulsory vaccination by a vote of 155 against 5. The desirability of an international Pharmacopœia was acknowledged; this should contain the most important remedies, with an exact description of their physical properties and of the processes for their preparation; Latin should be the language of the official text; the proportions of the compound preparations should be given in decatal numbers. The Congress desired that prescriptions be hereafter compounded by metrical weights. The officers of the fourth Congress were empowered to organize an international commission for the purposes named.—*Pharm. Zeit.*

New York College of Pharmacy.—At the first conversational meeting of the present session, Prof. Chandler delivered a lecture on Ozone.

Editorial Department.

Stamping of Proprietary Medicines.—In the October number we had stitched a copy of a letter of Internal Revenue Commissioner J. W. Douglass, dated Sept. 9th, wherein that officer gives the latest decisions in regard to the stamping of medicines as provided by what is known as the Internal Revenue Law, a law, by the way, which has been a book sealed with seven seals to very many officers previous to this last effusion of authoritative interpretation, which, in our humble opinion, is not in harmony with the spirit of the law, or with its letter either. We have no space for any extended remarks on this subject, which has been an annoyance to many pharmacists, in various parts of the country, for several years past; but we appreciate the endeavor of Supervisor A. P. Tutton to remove at once all doubt concerning this law and the duties of the pharmacists under it. We cannot believe for a moment that the rulings of the Commissioner, the highest officer under this law, will be sustained if the question should be fairly placed before the legal tribunals. The action of the Philadelphia College of Pharmacy on this question will be found upon another page, and we are pleased to be able to state now that, as far as heard from, the pharmaceutical associations of other localities coincide with these views. The surest way to create opposition to a law is, we believe, in making its application odious; and in this the Commissioner has succeeded so perfectly, that the public would feel the oppression keenly if the matter could be properly placed before it. We intend to refer to it again in a future number.

Pharmaceutical Journals.—We have just received the fourth number of the 22d volume of Wittstein's Vierteljahres-Schrift, and regret to state that its publication will be discontinued. Dr. Wittstein is so well known to our readers as a veteran laborer in the cause of pharmaceutical education and progress, that this discontinuance will be regarded with regret, and with the hope that his pen may not cease writing altogether in the service to which it has been devoted for nearly four decades.

Another change is contemplated by the German Apothecaries' Society. The action taken at its last meeting at Cologne looks very much as if the fusion of the "Archiv" and "Neues Jahrbuch" into one journal was contemplated. Such a change would concentrate so much talent into one publication as to insure its literary success beyond a doubt.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Chemistry, inorganic and organic: with Experiments. By Charles Loudon Bloxam, Professor of Chemistry in King's College, London, &c. With 295 Illustrations. From the second and revised English edition. Philadelphia: Henry C. Lea. 1873. 8vo. pp. 700. Price, cloth, $4.50; leather, $5.50.

This is an excellent work, well adapted for the beginner and the advanced student of chemistry. The numerous facts, the established laws and the various theories are given and explained so comprehensively and with such accuracy, as to show at once not only the able chemist, but likewise the experienced teacher. In the beginning of the work, the use of technical terms is almost altogether avoided, while considerable prominence is given to illustrative experiments, all of which are well described, well explained, and usually illustrated with appropriate wood cuts. Many of the processes of applied chemistry are described, and, with their apparatus, illustrated. With the adoption of the atomic system of notation (O=16, &c.) now employed by the large majority of chemists, the author is not disposed to adopt the binary theory of the constitution of salts; hence the old nomenclature for the salts has been retained, together with the formulas, modified, of course, by the change in the atomic weights; but the binary formulas are frequently placed alongside of the former; thus we find for *bicarbonate of soda* $Na_2 O. CO_2 \cdot H_2O. CO_2$ or $NaHCO_3$. Organic chemistry is treated upon nearly 200 pages; the space allotted to it, therefore, does not permit to enter as largely into details as in the first part; but all the classes of organic compounds have been duly considered, and those of some importance in the arts or otherwise more extensively described.

Not the least commendable feature of the work is the good and useful index, which contains not only the names of all the elements and compounds mentioned, but also their symbols, and the formulas of many, so that bicarbonate of soda, for instance, is met with not only under the letter *S*, but likewise under *N*, as $NaHCO_3$.

A careful examination of this work has convinced us that it is one of the best for the student of chemistry in its general relations, and in its applications to metallurgy and other extensive industrial manufactures.

An Introduction to Practical Chemistry; including Analysis. By John E. Bowman, F.C.S., &c. Edited by C. L. Bloxam, F.C.S., &c. Sixth American from the sixth and revised English edition. Philadelphia: H. C. Lea. 1873. 12mo. pp. 339. Price, $2.25.

The number of editions through which this little work has passed, is sufficient evidence of its value to the chemical student; by its present editor it has been thoroughly revised and enlarged by many additions. It appears to be particularly adapted for the advancement of those students who may be compelled to experiment with little assistance from an instructor.

The Physician's Visiting List for 1874. Philadelphia: Lindsay & Blakiston. Price, $1,—(for 25 patients weekly), &c.

This being the twenty-third year of the publication of this list, its convenient arrangement and its usefulness are too well known and appreciated to require any further comment.

An Account of the Cholera as it appeared at Nashville in the year 1873. By W. K. Bowling, M. D. Nashville, Tenn.: 1873. 8vo. 63 pages.

Its title explains the contents of this pamphlet, which is a reprint from the Nashville Journal of Medicine and Surgery, and contains a map of the city of Nashville and its vicinity.

THE

AMERICAN JOURNAL OF PHARMACY.

DECEMBER, 1873.

NOTES ON THE TASTELESS IRON COMBINATIONS.

By E. Rutter.

Having been engaged in the preparation of these salts since their introduction by Mr. Creuse, of Brooklyn, in May last, it has always been an object with me to ascertain their true composition. The theory of double decomposition falls at once to the ground, as in that case one molecule of ferric salt would require only two molecules of alkaline citrate; whereas it will be found that four molecules of the latter are always required to form the green compound. Now citric acid, as is well known, may, under certain conditions, be resolved into oxalic and acetic acids, and the similarity of color to that of ferric oxalate led me to suppose that the reaction might consist in the splitting up of the organic acid and the formation of a double oxalate of potassium and iron, together with chloride, iodide, or phosphate of potassium, according to which salt was used. Such, however, is not the case, for on treating the green compound with excess of alkali, filtering out the iron, and adding calcium chloride to the filtrate, a precipitate is formed which is freely soluble in acetic acid, and cannot therefore be calcium oxalate. This theory set aside, the only one tenable seems to be the following:

$$Fe_2I_6 + 4K_3C_6H_5O_7 = 6\ KI + 2\ (K_3Fe'''2C_6H_5O_7).$$

that is the formation of double citrate of iron and potassium together with potassium iodide.* Believing this to be the true reaction, I tried the experiment of mixing potassic and ferric citrates in equiva-

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*This result has been experimentally proven by G. F. Dickman in *The Pharmacist* for September; the saline residue left on evaporating the green solution yielded to alcohol iodide of potassium.—Ed. Am. Journ. Pharm.

lent proportions, and obtained a solution possessing the qualities and general appearance of the so-called tasteless salts. Calculating from the formula, the dried salt should yield 13·913 per ct. of ferric oxide, I ignited several portions, but, owing to the absence of crystallization and the varying degree of moisture, failed in obtaining exact results. The potassio-ferric oxalate is another of these double salts. It may be obtained by mixing solutions of ferric oxalate and neutral potassium oxalate in the proportion of one molecule of the former to three of the latter, as follows:

$$Fe_2 3C_2O_4 + 3\,K_2C_2O_4 = 2\,(K_3Fe'''3C_2O_4).$$

On evaporating the solution the salt may be obtained in beautiful green crystals, freely soluble in water but insoluble in alcohol. It possesses the same quality of tastelessness, without astringency, as the double citrate, and has the advantage of being stable, easily obtainable in crystals, and therefore more definite in composition.

Whether it is expedient to employ a mixture of two different compounds in place of a definite preparation, is a question for the physician to answer; but it seems probable that if he wishes to give iron in combination with chloride, iodide or pyrophosphate of ammonium, sodium or potassium, as the case may be, he would prefer to order it so in his prescription. The tendency of late years has been towards the employment of more concentrated remedies in place of the cumbrous formulas of ancient times.

EMULSION OF COD LIVER OIL.

By Willard M. Rice, Jr.

(Read at the Pharmaceutical Meeting, November 18.)

The high and important position occupied by cod liver oil in the lists of the materia medica, has induced many pharmacists and others to turn their attention to perfecting some mode by which this nauseous remedy may be rendered palatable and acceptable. Many of the formulæ so elaborated have been published in this and other pharmaceutical journals, while it is to be regretted that others have been withheld, thus placing their authors in the constantly increasing lists of nostrum venders. But none of the efforts thus far made have succeeded in *completely* masking the unpleasant fishy taste and smell of cod liver oil, although some approach very nearly to this "consummation devoutly to be wished."

After a series of experiments, at the request of, and assisted by, a medical friend, the writer of this has perfected the following formula, which he offers to his professional brethren, hoping that it may prove useful:

Oleum morrhuæ,	fl.℥viij.
Tragacanth,	ʒj.
Sacchar. alb.,	ʒiv.
Ol. gaultheriæ,	gtt. lx.
" sassafras,	gtt. l.
" amygd. amar.,	gtt. x.
Aquæ,	fl.℥viij.

The tragacanth and sugar are to be dissolved in the water and the mucilage strained. In this is to be incorporated first the essential oils and then the cod liver oil. This makes an elegant-looking emulsion, not too thick, containing fifty per cent. of the oil, and of a rather pleasant taste and smell.

Many manufacturers combine the lacto-phosphate of lime, etc., with the cod liver oil mixture, but as physicians often consider this decidedly objectionable in a medicine intended, as this is, in most cases, for continued use for a considerably protracted length of time, the author has been induced to omit it. It can be added, however, by a slight modification of the above formula.

NOTES ON PANCREATIN.

By Richard V. Mattison.

(Read at the Pharmaceutical Meeting November 18.)

The increasing popularity of pharmaceutical preparations of this valuable substance induces the writer to offer to the profession a few notes on the subject, hoping they may be of service in the elimination and proper exhibition of it in a medicinal form, which will be pleasant and agreeable both to the sight and palate.

Prefacing these remarks, a short notice of the pancreas and its action will be found interesting. This is situated within the curve formed by the duodenum, and opens into the intestine by a duct common to itself and liver. In its anatomy it closely resembles the salivary glands, and the fluid elaborated by it, called *pancreatic fluid*, appears almost identical with ptyalin. Like this secretion, pancreatic fluid, when pure, is a colorless, transparent and slightly viscid liquid, alkaline when fresh, quickly, however, on standing, becoming first neutral and then acid, differing, however, from saliva in containing no sulphocyanogen. It resembles albumen in being nearly wholly coagulated by heat, and also by the mineral acids, especially when concentrated ; precipitated also by alcohol. When this precipitated coagulum is separated from the liquid, and water added to it, it is soluble, thus essentially differing from albumen.

Its specific gravity is from about 1·008 to 1·009, and contains from 13 to 19 per cent. of solid matter, of which, according to Schmidt, about 12½ per cent. is pancreatin.

The action of this peculiar principle upon starch is to change it to glucose, and upon fatty and oily substances to quickly emulsify them, thus rendering them easily absorbed and assimilated by the lacteals.

Bernard supposed the fat to be decomposed, and Fownes also states that the fat is resolved into fatty acid and glycerin. This is denied by most recent writers, and such is certainly not its principal action, no saponification apparently taking place, which fact may be easily proven by thoroughly mixing, with agitation, a solution of pancreatin with cod liver oil. After emulsification, which almost immediately occurs, the oil may be separated by simply agitating the emulsion with ether or petroleum benzin.

This *emulsification* is the *essential* purpose of the pancreatic fluid, thus breaking up the fatty globules and allowing assimilation to proceed with rapidity, and in this respect is greatly superior to either saliva or albumen. Liquid fats are insoluble in the aqueous albumino-saline fluid, with which the vascular tissues are saturated ; consequently no absorption can take place, and the oil passes from the patient in the same state in which it was administered. This occurs most frequently during the administration of cod liver oil to phthisical patients, and the association of this oil with pancreatin offers a valuable and natural method of administration.

At the time when the subject was brought to the writer's notice, he was largely engaged in the manufacture of saccharated pepsin by the process of Mr. E. Scheffer (an excellent one, by the way), and the idea suggested itself that perhaps a solution of sodium chloride would precipitate pancreatin in the same manner as it does pepsin. After some preliminary experiments, the following was adopted as furnishing the best result :

The pancreas are dissected and macerated in water acidulated with hydrochloric acid for about forty-eight hours, then separated, and the acidulated solutiom of pancreatin passed through a pulp filter until it is perfectly clear. To this clear solution is then added a saturated solution of chloride of sodium and allowed to stand until the pancreatin is separated. This is carefully skimmed off and placed upon a muslin filter and allowed to drain, after which it should be washed with a less concentrated solution of sodium chloride, and then put under the press. When all the salt solution has been removed, and the mass is nearly dry, it is rubbed with a quantity of sugar of milk, and dried thoroughly without heat, after which it is diluted until ten grains emulsify two drachms cod liver oil. To this may be given the name of "saccharated pancreatin."

An elixir being suggested for the exhibition of this in an elegant form, the following formula was devised, and we think will be found very agreeable.

Pancreas,	No. vj.
Acid hydrochlor.,	f℥iv.
Glycerin,	q. s.
Aqua cong.	iss.

Macerate the dissected pancreas for three days in the mixture of water and acid with Oiiss of glycerin added; then separate the liquid, strain and add fʒiiss oil of orange and a sufficient quantity of glycerin, to make the liquid measure Cong. iiss; this is then filtered until perfectly transparent. The result is a sweet acidulous elixir, one fluidrachm of which will easily emulsify half a fluid-ounce of cod liver oil—a valuable addition to the number of preparations combining efficiency with pharmaceutical elegance.

Philadelphia, Eleventh month 10, 1873.

NOTES ON AROMATIC WATERS.

By Joseph P. Remington.

Read before the Pharmaceutical Meeting, Nov. 18, 1873.

This class of preparations has long found favor with physicians as a means of dissolving and administering such potent or disagreeable remedies as are readily soluble in water, and the increasing use of carbonate of magnesium in their manufacture (although probably not the best method),* renders their preparation of easy accomplishment.

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* See Minutes of Pharmaceutical Meeting, page 564.

The first requisite is the selection of fresh essential oils. An aromatized water made from a stale and terebinthinous oil is the worst advertisement a pharmacist can have, whilst, if a fresh oil is at hand, even an aromatized orange water can be made which will serve many good purposes. The writer has used an orange water made in the usual manner with considerable satisfaction, and a very useful simple elixir resembling Curacoa Cordial may be made by taking of

Aqua Aurantii (ʒij in a pint)	f℥iss.
Simple Syrup	f℥iss.
Cologne Spirit	f℥j.
Spt. Vini Gallici (opt.)	f℥ss.

Mix.

Some formulas for simple elixirs direct the essential oils to be mixed with the spirit, and then a certain proportion of sugar and water added and filtered. The great objection to those made in this way is that when such are used in prescriptions with water in combination (and it is generally used in this way), a separation of the excess of oil takes place, which renders the preparation unsightly.

A delicately flavored syrup of citric acid may be made which will be clear and bright, not disfigure the sides of the bottle, nor have the harshness that the officinal article possesses.

To make this, double the quantity of fresh oil of lemon prescribed by the officinal formula should be rubbed up with a small quantity of carbonate of magnesium, a little water added, thrown on a filter, then followed by more water, sufficient to form with the sugar and citric acid the syrup of officinal strength.

Compound aromatic waters are readily made, containing caraway, coriander, cinnamon, orange and orange-flower flavors, and form a means of preparing the host of elixirs that are now required:—

The mixed alkaloids to be dissolved in cologne spirit, syrup added, and the salt soluble in water, dissolved in the aromatic water.

COSMOLIN AND PARAFFIN OINTMENT.

By A. W. Miller, M. D.

Read at the Pharmaceutical Meeting, November 18th.

This preparation is by its manufacturers explained as being purified and concentrated petroleum. According to the most trustworthy information which we were able to obtain, it is made by distilling crude petroleum so as to remove successively the gasolin, benzin, burning oils and the lighter machine oils. The residuum is then subjected to still greater heat, and its vapor is brought into contact with a jet of superheated steam, for the purpose of expelling the last traces of light hydrocarbon. After this it is still further purified and deodorized by the action of hot animal charcoal. We are consequently forced to conclude that cosmolin is simply impure paraffin, or a mixture of paraffin with varying proportions of the heavy oils which are nearest allied to it. These oils are known to the trade as paraffin oil, neutral oil, lubricating oil, spindle oil, &c. Although the manufacturers claim cosmolin to be a simple body, this is refuted by their own statement, namely, that they furnish this one simple body in the form of cerate, which *remains* firm at 95°, as a jelly which is fluid at 85°, and also as a liquid which is still fluid at 32°.

Taking advantage of the fact that paraffin is only very sparingly soluble in alcohol, we dissolved cosmolin in ether and in benzin, from both of which solutions the paraffin was readily precipitated by the addition of alcohol. Cosmolin is turned dark brown, like caramel, by sulphuric acid, but this is no doubt due to its impurities. Nitric acid produces no reaction in the cold, but when heated turns it yellow and finally orange color. Muriatic acid and liquor potassæ have no effect upon it, either cold or hot. All of these tests point to the presence of paraffin.

As cosmolin appears to possess some merits, and is certainly gaining favor with physicians, it would be desirable to contrive a formula for its preparation.

With this object in view a number of experiments were instituted for the purpose of obtaining a combination having similar physical and chemical properties. The substances which seemed most suitable were pure paraffin, and the so-called neutral oil, of the best quality, which possesses less of the peculiar coal oil smell than any other kind examined. The gravity of this oil is 32° to 33°, and its boiling point is somewhere about 500°. Coal oil dealers claim that this oil is free from odor, though this statement is only relatively true. In order to deodorize it still more, it was percolated through hot animal charcoal.

One part of paraffin was melted and three parts of the oil, prepared in the manner described, were added to it. This compound, a sample of which is presented herewith, has the same behavior towards reagents as cosmolin. Like this, it melts at about 95°, does not evaporate below 400°, and of course will not turn rancid. Its odor is rather stronger than cosmolin; the color is somewhat different, though this is most probably due to using pure paraffin, as some of the impure grades have the same peculiar amber color as cosmolin. Both preparations when burned emit the characteristic smell of coal oil, and give off a copious black smoke; ignited drops of both fall down with a peculiar hissing sound. The chief difference appears to be in the mode of preparation, as the manufacturers of cosmolin claim to use no chemicals, while it is well known that both paraffin and the heavy oils are purified by sulphuric acid and soda. Still, as the compound which may be appropriately called "paraffin ointment" was boiled in distilled water without making it either acid or alkaline, the much-dreaded chemicals have evidently been completely removed.

Cosmolin is vended at the somewhat exorbitant price of $1 per lb., while paraffin ointment can be sold at a very fair profit for one fourth of that price.

The above formula for this substitute for cosmolin is not offered as the best that may be devised, but only for the purpose of directing inquiry to this subject. The varieties of heavy coal oils in the market are so numerous that it becomes a tedious task to examine them all. We were in fact promised a sample of a purified paraffin oil made in Boston, which was represented as being almost identical with cosmolin, but it has not as yet arrived.

In conclusion we would state that cosmolin does not appear to be so entirely free from all irritating properties as it is claimed to be. A case has been communicated to us by Dr. Louis G. Bauer, one of our members, in which he applied it for an aggravated and obstinate form of eczema, occurring on the upper lip. It was productive of a high degree of inflammation and considerable tumefaction, although citrine ointment and similar preparations had been previously employed without such results.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

Tartaric acid in purgative solutions of magnesia.—E. Léger proposes to convert tartaric into metatartaric acid by heating it to 170° C. (338° F.), when it readily fuses, loses its property to crystallize and forms with magnesia a very soluble salt. This salt has no unpleasant taste, and is more energetic and reliable in its purgative action than citrate of magnesium. He recommends to heat a small quantity of tartaric acid in a porcelain or silver capsule over a slow fire, until, with occasional agitation, it fuses, when more tartaric acid is added in small quantities, with the precaution not to reduce the temperature too much, so as to avoid the solidification and subsequent burning of the mass. When sufficient acid has been added, the same heat is continued until the whole has become completely liquefied, when it is of a light amber color and entirely converted into the metatartaric acid. It is then removed from the fire, and when it has acquired a suitable consistence, it is formed into flat cakes, which are to be kept in well stoppered bottles, the modified acid being very hygrometric.

To prepare the purgative solution, a portion of the requisite water is added to the mixed acid and carbonate of magnesium, all heat being cautiously avoided to prevent the acid from passing again into the state of ordinary tartaric acid, which would precipitate as tartrate of magnesium. The solution is effected in a few minutes, and keeps unaltered for several weeks. The author gives the following proportions for making this solution extemporaneously:

Modified tartaric acid, 13, 17, 20, 23, 27, 30, 33, 37, 40, 43, 47 grams.
Carbonate of magnesium, 7, 8, 10, 12, 13, 15, 17, 18, 20, 22, 23 “
—*L' Union pharm.*, *Sept.*, 1873.

New process for tar water.—L. Pommier prepares a concentrated tar water by macerating in a covered vessel for eight days a mixture consisting of ten parts each of Norwegian tar and ammonia water, and of one hundred parts of water; the mixture is then boiled to expel the excess of ammonia, then cooled and filtered. Thus prepared, it has a mild alkaline reaction to litmus, and may be diluted as required.—*Ibid.*

Preparation of pure metallic silver.—R. A. Wawrinsky has observed that carbonate of calcium, employed to precipitate the copper from the nitric acid solution by Græger's method,* will invariably precipitate some silver. At the suggestion of Prof. Almén he employed carbonate of magnesium, and found that copper nitrate is gradually precipitated by carbonate of magnesium at the ordinary temperatures, while silver nitrate is, under the same circumstance, affected only after a long time. If the mixture is kept at between

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* See American Journal of Pharmacy, 1872, p. 277.

40° and 50° C. (104° and 122° F.), the copper is readily precipitated, while the precipitation of silver commences near 60° C. (140° F.)—*N. Jahrb. f. Pharm.*, 1873, *October*, from *Upsala Läkareförenings Förhandl.*

Fat in ergot.—Oscar Ficinus estimates the amount of fat in ergot at 30 per cent., and regards it as the cause of the ready decomposition of the powder. He suggests that powdered ergot, if deprived of fat by ether, will keep much better; but the dose of the powder will have to be reduced one-third, or else the loss in weight will have to be compensated for by the addition of some inert powder, like liquorice root or milk sugar.—*Archiv d. Pharm.*, 1873, *Sept.*

Valerianic acid from fusel oil.—Oscar Ficinus has made the interesting observation that valerianic acid may be obtained in a similar manner as acetic acid by the quick vinegar process, if beechwood chips are substituted in the cask by cut valerian, and the diluted fusel oil is slowly percolated through it at a temperature of 30° to 40° C. (86° to 104° F.) The process, however, is not applicable on a large scale, owing to the length of time required and on account of the loss sustained by the evaporation of fusel oil and the simultaneous formation of amyl-aldehyde and valerianate of amyl-oxide.—*Ibid.*

Analysis of the bark of Remijia Velozii.—This, one of the so-called false cinchona barks is known in Brazil as *Casca della quina de Remijia.* Dr. J. Nowak found in it much tannin, coloring iron salts green, pectin compounds, dextrin, mucilage and two compounds, either identical or closely allied to kinovin and kinovic acid. The air dry root yielded 12·2 per cent. ashes, containing 7 per cent. iron, 21 per cent. silicic acid, potassium, sodium, calcium, magnesium, chlorine, and phosphoric, sulphuric and carbonic acids.—*Zeitschr. d. Œsterr. Apoth. Ver.*, 1873, *Oct.* 10.

Tecoma Ipe, Mart., nat. ord. *Bignoniaceæ*, is called ipe-tabaco in Brazil; its pale brownish wood, the raspings of which have the color of snuff (hence the popular name) is used against herpes in the dose of one ounce taken morning and evening in the form of decoction. The decoction of the bark is employed in herpetic affections and as a gargle in angina tonsillaris. The juice of the leaves is used as a remedy in paralysis of the eyelids, and the infusion in ophthalmia impetinosa, particularly in photophobia.

Dr. Th. Peckolt has separated from one kilogram of the wood 21·8 grams pure chrysophanic acid, 37·5 bitter extractive and 109·375 of resin, somewhat resembling resin of guaiacum in appearance, but becoming golden yellow with nitric acid, and being finally oxidized to picric acid.—*Ibid.. Nov.* 1.

PHARMACEUTICAL NOTES.*

By J. B. Barnes.

Guaiacum resin, as it is imported, is exceedingly impure, which will be seen by the following experiments: Sixteen ounces of guaiacum resin supplied by the wholesale druggist, a sample of which I place before you, was exhausted by boiling in rectified spirit; the quantity of purified resin obtained was 13 ounces and 288 grains; the insoluble woody particles weighed 2 ounces and 139 grains, or 14·4 per cent. of impurity.

Another experiment was made by operating in a similar manner upon 8 ounces of powdered guaiacum resin obtained of a wholesale house, which yielded about 7 ounces of pure resin, and 412 grains or 11·7 per cent. of impurity, consisting of a brown bulky powder.

These results show that pure guaiacum resin should be used for all pharmaceutical purposes, in preference to the guaiacum resin as imported and, I believe, universally used.

Simple extract of colocynth, prepared by two macerations of the pulp in cold distilled water, pressing, boiling the liquor, separating the coagulated matter, evaporating to dryness, and exhausting with rectified spirit, yielded the same amount of extract as was obtained from the same qaantity and sample of colocynth pulp which had been exhausted with proof spirit and evaporated to dryness until the weight was constant. By this means the use of a large quantity of spirit and subsequent distillation was avoided.

The infusion of roses of the Pharmacopœia, as is well known to all pharmaceutists, loses its transparency when cold. I find that when one part of glycerin is added to eight or nine parts of infusion of roses it at once becomes bright and continues so as long as it keeps good. Also that when three fluid-drachms of glycerin are added to a mixture composed of one grain sulphate of quinia, one minim of dilute sulphuric acid, and nine fluid-drachms of infusion of roses, the precipitate of tannate of quinia which forms is dissolved, and the result is a beautiful bright solution. The precipitate which occurs in gargles containing tannic acid and infusion of roses can also be dissolved by the addition of two fluidounces of glycerin to the pint.—*Pharm. Journ.* (*Lond.*), *Nov.* 8, 1873.

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* Read at the Evening Meeting of the Pharmaceutical Society of Great Britain, November 5, 1873.

NOTE ON A SOLUTION OF IODOFORM.

By Louis Elsberg, M. D.,
Professor of Laryngology and Diseases of the Throat in the University of New York.

A great objection to the employment of iodoform (C_2HI_3) in substance is its bad odor, which is very penetrating and persistent; furthermore, there has not hitherto been in use any effective solution for topical application in cases where ointments are inapplicable. It will doubtless be of interest to all who know the medicinal value of iodoform to learn that both these objections have been overcome. I have found an ethereal solution which deodorizes iodoform, the solution smelling of ether only, and at the same time constitutes an effective topical remedy for diseased mucous membranes, as of the throat, nose, mouth, larynx, vagina, rectum, etc. Rhighini used an ethereal solution for direct inhalation, and Dr. Sass used an ethereal solution and also a mixture of iodoform and sweet-almond oil by means of a spray-producer for inhalation. Dr. Gubler requested Messrs. Odin and Leymarie to ascertain the relative proportions in which iodoform is soluble in ether, and the most favorable conditions for its preparation; their experiments and conclusions are published in the *Pharmaceutical Journal*, August 2, 1873. The London *Doctor* for September 1 tells us that experiments were made with pure ether of 65° Baumé (specific gravity .724), and also with ether of 62° Baumé and 56° Baumé, the temperature being 13° C. Eight grains of tincture obtained with these ethers contained iodoform in solution, respectively, to the following extent:

Ether of 65°	Baumé,	1.61	grammes.
" 62°	"	1.26	"
" 56°	"	1.13	"

The conclusions drawn by the authors from their experiments are: 1. To employ iodoform in the crystalline state.

2. To make the solution in a *red* glass flask by simple agitation.
3. To use the following proportions:

Crystallized iodoform, 1 gramme;
Ether (60° Baumé), 4 grammes.

I had a solution prepared with Squibb's ether, and find that it possesses all the advantages of iodoform in powder for local applications, without its disadvantages. The smarting which the ether may be expected to produce upon the mucous membrane is momentary only, so that the application becomes really painless. Its beneficial effects surpass my expectations.—*Philada. Medical Times, Oct.* 4, 1873.

THE PREPARATION OF LIQUOR BISMUTHI.*

By C. Mehu.

In the formula given by Mr. C. H. Wood for the preparation of Liquor Bismuthi† there are two equivalents of citric acid ordered to one equivalent of bismuth. I have satisfied myself many times that a single equivalent of citric acid is sufficient to obtain a perfectly stable solution of bismuth. In this manner an excess of citrate of ammonium in the liquor is avoided. The method which I adopt is as follows:

I dissolve an ascertained weight of pure bismuth in three times its weight of pure nitric acid, then concentrate the solution and leave it to crystallize. After one or two days the mother liquor which surrounds the crystals is decanted and evaporated in a porcelain capsule at a moderate temperature, so as to completely drive off the excess of acid; in cooling the liquor forms a crystalline mass. All the crystals being put together, I then pour upon them a concentrated solution of citric acid, made with heat. For each equivalent of bismuth I employ an equivalent of crystallized citric acid, being very nearly equal weights of each. The solution of citric acid dissolves completely the crystals of nitrate of bismuth.

In order to obtain citrate of bismuth I divide this solution of nitrate of bismuth in citric acid into two equal parts, and pour into one of them a sufficient quantity of ammonia to dissolve the precipitate that is formed at first, leaving only a slight excess of ammonia, and then add the other portion of the solution. From this mixture there results a very white precipitate of citrate of bismuth, which I wash with warm water as long as it gives any traces of acidity, and then dry in a stove. The washings are acid and contain a large proportion of nitrate of ammonium, with scarcely any traces of bismuth. This can be isolated in a state of sulphide by means of sulphide of sodium.

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* "Annuaire Pharmaceutique," 1873, p. 55.

† "Pharm. Journ." [3], vol. ii, p. 233.

The citrate of bismuth so prepared dissolves in ammonia; the solution can be diluted at will with water without becoming turbid, and may be preserved for years. I have examined during two years several solutions of bismuth containing from 20 to 50 grams of metallic bismuth per litre without recognizing the least alteration. The solubility of the citrate of bismuth is very rapid and easy; it is only necessary to wash solid citrate of bismuth with a strong solution of ammonia to obtain a perfect solution too strong for ordinary use.

When the solution of citrate of bismuth in ammonia is evaporated upon plates there is left a white residue, insoluble in water, but completely soluble, although rather slowly, in ordinary solution of ammonia.

The citrate obtained by the evaporation of the ammoniacal solution yields nothing perceptible to alcohol, unless it contain nitrate of ammonium in excess or some other impurity soluble in that menstruum. The solution of citrate of bismuth in ammonia is not rendered turbid by acetic acid, chloride of sodium, chloride of ammonium, iodide of potassium, ferrocyanide of potassium, or bichromate of potash. It is precipitated by oxalate of ammonium, nitric acid, phosphoric acid, sulphuric acid, and nitrate of urea.—*Lond. Pharm. Journ. Nov.* 8, 1873.

ACTION OF WATER UPON THE RESINOID PRINCIPLE OF OPIUM.*

By L. Perier.

Soubeiran in his *Traité de Pharmacie Théorique et pratique*,† has pointed out that the proportion of water put into contact with crude opium exercises an influence upon the solution of the resinoid principle, oil, and narcotina, but that the resulting modifications of this action are little known. The author has found that at any rate the proportion of water employed plays an important part in the solution of extract of opium, as shown by the following experiments:—

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* Bulletin des Traveaux de la Société de Pharmacie de Bordeaux, xiii., 245.

† Fifth edit. (1857), i., 777; seventh edit. (1869), i., 851.

(1) 120 grams of extract of opium was divided into two equal parts; one half was treated with 120 grams of distilled water at 15° C., the other half with 250 grams of water at the same temperature. At the end of six hours, assisted by agitation, solution was complete in both liquids, and they were filtered through paper. The first only left a few bubbles of blackish matter; the second abandoned six grams of oleo-resin.

(2) The first solution was then evaporated to dryness and the product divided into two parts; one was put into a small quantity of water (about twice its own weight), the other into 1000 grams. After twenty-four hours the concentrated liquor was quite limpid and without deposit, but the dilute liquor had deposited a considerable residue.

(3) 30 grams of extract was dissolved in water, under the conditions prescribed in the Codex (ten times its weight of water at 15° C.). The solution was at first muddy, a black granular precipitate covered the bottom of the vessel; but upon evaporation in a water-bath the extract again became homogeneous, and afterwards dissolved in 30 grams without any deposit. In its turn, this solution threw down a precipitate when double its own volume (60 grams) of water was added, and the precipitate was augmented commensurately with the addition of more water. Afterwards concentration reproduced a normal extract, soluble without residue.

(4) The quantity of water employed gave rise to a regular progression in the phenomena of solution and precipitation. If, for example, five grams of extract of opium were put in ten grams of distilled water, the portion which was first dissolved left in suspension a granular deposit. In proportion as the liquid became saturated this deposit was effaced, until at last no more remained undissolved. The maroon black liquid, a layer of four centimetres of which was impermeable by sunlight, did not require filtering; if it were sometimes scarcely clear yet it did not deposit. With five grams more water a turbidity was manifested which was not completely removed by shaking. At the maximum of 20 grams of water the deposit commenced; towards 30 grams, and after standing for an hour, the deposit was nearly doubled; at 50 grams (ten times the weight of the extract) it ceased, and the liquid was no longer troubled by fresh additions of water.

The whole of the resin however could not be removed by water from solutions of opium. Thirty grams of extract which no longer gave a precipitate upon the addition of water, yielded 2·5 grams of black resin when treated with ammonia. Although in this case the extract was the product of a fourth maceration, the phenomenon occurred, but in a less degree, under ordinary conditions.

It thus appears that the same matter will alternately pass through a filter without residue or leave an enormous residue, according as the quantity of water employed is small or large; also that the precipitation ceases when the weight of the menstruum is about ten times greater than that of the substance. It is even possible to dissolve in a very concentrated cold solution a deposit that has not been obtained from it. Finally, that the heat of a water-bath will restore the homogeneity destroyed by an excess of water, an observation that is not in accord with what has been written by other authors. The constant results obtained during his experiments have induced M. Périer to formulate his conclusions as follows:—

(1) The quantity of distilled water at 15° C. in which extract of opium is dissolved has a direct and certain influence upon the partial elimination of the resinoid matter.

(2) Concentrated aqueous infusions of extract of opium do not give any notable precipitate, except with the lapse of time; dilute solutions, where the weight of the menstruum exceeds twice that of the matter dissolved, give as much more residue as the proportion of water is increased from two to ten.

(3) Water, in whatever quantity does not precipitate the whole of the resinoid matter; a certain portion yields only to ammonia.

(4) The residue of extract of opium treated with cold water redissolves in the concentrated mother solution, and heat, instead of aiding in the separation of the resin, oil and narcotina, reconstitutes the homogeneity of the extract.—*Phar. Jour.* (*Lond.*) *Oct.* 11, 1873.

A NEW TEST FOR MORPHIA.*

By Louis Siebold.

In conducting a series of experiments on organic alkaloids, I discovered a new test for morphia, which greatly exceeds in delicacy the tests hitherto known for that substance. If it is to be applied for the detection of opium in food, the contents of stomachs, etc., in poisoning cases, it is of course necessary to separate the alkaloid from the other substances in the usual manner. The test is then performed in the following way:—

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* Read before the British Pharmaceutical Conference.

Heat the substance which is believed to be, or to contain, morphia gently with a few drops of pure sulphuric acid, add a very small quantity of pure perchlorate of potassium. The liquid immediately surrounding the perchlorate will at once assume a deep brown color, which will soon spread and extend over the greater part of the acid. Warming increases the delicacy of the test. 0·0001 gramme of morphia can be distinctly recognized in this way and no other alkaloid is acted upon in a similar way by the substances named. It is indispensable however for the success of the experiment that the perchlorate of potassium be absolutely free from chlorate; if it is not, it must be heated with successive portions of pure hydrochloric acid until the latter remains colorless and ceases to give off chlorine. After removing the HCl completely by washing with water, the perchlorate must be dried at 212°, and is then ready for use. I feel justified in strongly recommending this test to the attention of the chemical profession.

[Some time after I had forwarded the above report to the Secretary of the Conference, another equally delicate new test for morphia was published by Mr. R. Schneider. One drop of pure sulphuric acid is placed on a porcelain slab, and a mixture of one part of morphia and six parts of sugar is added; the mixture will at once assume a purplish red color, which remains unaltered for some time. Codeina and aconitina, if treated in the same way, produce a similar reaction.]—*Pharm. Jour. and Trans., October* 18, 1873.

ON THE ESSENTIAL OIL OF ORANGE (PORTUGAL.)*

By C. R. A. Wright, D. Sc. (Lond.),

Lecturer on Chemistry in St. Mary's Hospital Medical School.

A brief preliminary notice on this subject by the author and Mr. C. H. Piesse was read before the Conference two years ago; since then a large number of experiments have been made, of which the following is a synopsis:

Proximate Constituents.—The great majority of the oil (97·2 per cent.) distils below 180°; a small quantity of an oxidized constituent boiling near 220° is contained, possessing the composition $C_{10}H_{16}O$; and a non-volatile soft resin is also contained giving numbers on analysis agreeing with the empirical formula $C_{20}H_{30}O_3$, together with another oxidized substance of high boiling point, a portion distilling at 240°—250°, agreeing with the empirical formula $C_{40}H_{64}O_5$.

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* Read at the meeting of the British Pharmaceutical Conference.

The oxidized constituent $C_{10}H_{16}O$ is possessed of the property of becoming altered by heat forming an isomeric liquid of higher boiling point, and finally becoming a non-volatile resin, no change in its composition being thereby produced: in this respect it resembles an analogous (or identical?) substance contained in oil of nutmegs.

The portion boiling below 180° yields, on distillation over sodium, a hydrocarbon, $C_{10}H_{16}$, boiling constantly at 178°, and apparently consisting of one homogeneous substance, no trace of cymene being apparently present. Many other natural terpenes (*e. g.*, the terpene of turpentine oil and that of nutmeg oil) are not pure terpenes, having been found to contain cymene, $C_{10}H_{14}$, as well as a $C_{10}H_{16}$ hydrocarbon.

When two equivalents of bromine are cautiously added to the terpene of orange oil (*hesperidene*) combination takes place with evolution of heat; the product breaks up on distillation, forming hydrobromic acid and cymene, thus—

$$C_{10}H_{16}Br_2 = 2\ HBr + C_{10}H_{14}.$$

The cymene thus formed is identical with that contained in cumin oil and with that obtainable from camphor, yielding on oxidation terephthalic acid and acetic acids without admixture with isophthalic acid or higher homologues of acetic acid; the original hydrocarbon *hesperidene*, when similarly oxidized, gives acetic acid, but no trace of terephthalic acid.

If the oxidation be not carried to its limit, the action of chromic acid on hesperidene gives rise to a small quantity of a substance, $C_{10}H_{16}O$, which resembles in all respects save odor the body of that composition contained in the original oil; probably therefore that body is formed by the spontaneous oxidation of the hydrocarbon; or possibly the hydrocarbon is produced by the natural deoxidation of this oxidized substance.

Action of Nitric Acid on Hesperidene.—This action is very energetic, the resulting substances being carbon di-oxide and nitrous red fumes, oxalic acid and a new body, *hesperisic acid*, being formed:

this hesperisic acid forms a lead salt insoluble in water, and a calcium salt soluble in water and precipitated by alcohol from aqueous solution; its barium salt is soluble in water. The acid is obtained by treating the purified calcium salt with sulphuric acid and ether; on evaporation of the ether the acid is left as a honey-like mass, which gradually becomes crystalline. It is hexabasic and has the composition $C_{20}H_{26}O_{17},2H_2O$, the $2H_2O$ being lost at 100°.

Action of Hydriodic Acid on Hesperidene.—Hydriodic acid combines with hesperidene, forming a liquid compound partially decomposed by distillation. Attempts to synthesise an acid containing eleven proportions of carbon by acting on this hydriodide with cyanide of silver, etc., met with little success: it was also found impracticable to add hydrogen on to hesperidene by the joint action of phosphorus and hydriodic acid, a polymeride boiling about 250° being the sole product.—*Pharm. Journ. and Trans., October* 18, 1873.

ON THE DETECTION OF THE ADULTERATION OF TEA.

Read before the British Association for the Advancement of Science.

By A. H. ALLEN, F.C.S.

As public analyst for the borough of Sheffield, many samples of tea had been brought under the author's notice, chiefly by dealers themselves, in order to guard against selling tea, which, if they had been analyzed by him officially, might have been condemned as adulterated. The analyses of tea up to the present time were by no means numerous; and some were so old that they might well be viewed with suspicion. The three principal constituents of tea were tannin, gum, and "woody fibre," with small quantities of some albumenoid body, theina (the active principle), coloring matters, chlorophyll, essential oils, &c. The proportions of these found by different analysts varied very much, the difference evidently depending upon the methods of determination employed. His object had been more to work out a technical method of testing teas for adulteration than to establish the actual composition of genuine tea. The estimations that had been made of tannin seemed to present the greatest variations, and in many cases they were manifestly wrong. A modification of Dr. Hassall's process, in which a volumetric solution of gelatin was used, had given him very concordant and reliable results, and had made the determination of tannin in tea an operation of a rapid and tolerable simple character. The use of a standard solution of gelatin for the determination of the strength of tannin matters was nothing new; but he believed he had been the first to employ the process in the examination of tea. Mr. Allen then described the details of the method he employed in the estimation of tannin, stating that he had found by the process in genuine black tea of rather more than average quality 12·5 per cent. of tannin, which presented a close agreement with those in the old analyses of Mulder, which he regarded as the most accurate and complete analyses of tea extant. The estimation of tannin was of the first importance; for if it reached the normal amount all question of adulteration by exhausted leaves was at an end, and foreign leaves were very unlikely to be present. The only fallacy in such a conclusion would be caused by an admixture of catechu, or sloe leaves. The next point of importance was the percentage of "woody fibre," as it was called by some analysts, and here, again, he was disposed to think that Mulder's analysis was the only accurate one. The percentage of gum, insoluble matter, and tannin in any sample of tea, considered carefully, would enable the analyst to form a very accurate opinion as to the presence or absence of exhausted leaves, &c. Analyzed by the above described methods a sample of very superior black Congou tea gave the following results, which he had placed in juxtaposition with the numbers obtained after some of the same sample had been infused in the usual manner in the teapot (the exhaustion was not carried to excess, no second quantity of tea being used), and the leaves re-dried:—

	Original Tea.	Exhausted Tea.
Moisture . . .	9·2 .	11·1
Insoluble matter . .	58·7 .	87·5
Gum . . .	10·5 .	3·8
Tannin (by gelatin) .	15·2 .	3·3

From this it would be seen that infusion in the teapot resulted in the increase of the insoluble matter by nearly 30 per cent., while the gum and tannin were much reduced in amount. Generally the exhausted leaves were re-dried and made up with gum, which gave them a peculiar glossy appearance, and was detected by excess on analysis. From a table which he had prepared of thirteen different analyses, he gave several instances of adulteration. In one case he was attracted by a table in a window, "Try our fine rough, flavored, thick, sappy, Moning Congou at 2s a lb." The specimen, when examined, was found to contain catechu, starch, magnesia, metallic iron, graphite, sand, &c. He had also found sloe leaves presenting a close resemblance to green tea in every respect. An inspection of the specimens analyzed showed that genuine green teas were richer in tannin than black teas in about the proportion of two to three. This was no doubt due to the partial oxidation and destruction of the tannin during the process of fermentation to which black tea is subjected in the process of manufacture. Whether the acknowledged superior strength of green tea was due to the larger percentage of tannin present in it, he was not prepared to say. The determination of theina he had made did not account for the difference, and most analysts had found more theina in black than in green tea. The infusion of green tea was not nearly so strong in color as that of black tea, though it was half as strong again in tannin, so that the depth of color could not be regarded as a proof of strength, though generally so considered. If a solution of carbonate of sodium be added to a weak infusion of tea (strained away from the leaves) a considerable darkening was observed, though certainly the infusion could become no stronger. Thoroughly extracted tea leaves yield a brown liquid when treated with carbonate of sodium solution. These facts quite explained why careful housewives had a fancy for putting soda in the teapot, the infusion becoming sensibly darker by the addition, to say nothing of the extra coloring matter from the leaves. Apart from its softening effect on the water (the advantage of which he thought was doubtful), there could be no good reason for its addition. In the methods he had used for detecting facing and coloring there was not much that was new. On treating the tea with warm water the colors and facings came off, and on straining off the leaves and leaving the liquid at rest, they gradually settled to the bottom. If prussian blue or indigo were present the sediment generally had a bluish or greenish color, and the tests for these pigments must be tried accordingly. Magnesia was often present both in the free state and as insoluble silicate. This latter facing he had found on several occasions on green teas of peculiarly smooth appearance and slippery feel. It was detected by heating the sediment with hot hydrochloric acid, and then with solution of caustic soda. The residue was ignited and fused with alkaline carbonate, the first product dissolved in acid, evaporated to dryness, redissolved in weak acid, the solution treated with ammonia and oxalate of ammonium, the precipitate filtered off, and the clear liquid tested for magnesium, in the usual way, by phosphate of sodium, when an abundant precipitate was obtained, proving the presence of magnesium as silicate.—*Chemical News, Oct.* 24, 1873.

ESTIMATION OF SULPHUR IN IRON AND STEEL.

By T. J. Morrell.

The more common method of estimating sulphur in iron and steel consists in acting on the metal with sulphuric or hydrochloric acid, and precipitating some metallic sulphide by the evolved sulphuretted hydrogen. It would be a desideratum, in point of time, if this sulphide could be directly weighed.

By passing the evolved gases through an ammoniacal solution of cadmium oxide (or a solution of sulphate to which an excess of ammonia has been added), a precipitate of cadmium sulphide is obtained, which can be at once collected upon a small filter, dried at 212° F. and weighed.

The phosphoretted hydrogen, evolved in a solution of the metal together with the sulphuretted hydrogen, causes no precipitate in the solution.

The presence of ammoniacal salts would also prevent any precipitation of carbonate of cadmium by the traces of carbonic acid in the air drawn through the apparatus by the aspirator after the metal is dissolved. However, the aspirated air could easily be passed through potash solution, to remove its carbonic acid.

To prevent the precipitation of oxide of cadmium on the filter, the precipitate should be washed with distilled water containing diminishing quantities of ammonia.

If, in very accurate estimations, it is necessary to estimate the minute quantity of sulphur left in the solution and residue of the metal, this can be done as usual and added to that found as above.

Five test analyses of a piece of Bessemer steel known to contain ·13 per cent. of sulphur, gave as follows: (1) 0·124 per cent.; (2) 0·125 per cent.; (3) 9·137 per cent.; (4) 0·125 per cent.; (5) 0·124 per cent.

Cambria Iron Works, Johnstown, Pa.

—*Am. Chemist.*

ON TEA.

By J. Alfred Wanklyn.

There is no doubt that tea is sometimes adulterated with iron-filings and other preparations of iron, and when public analysts have found that iron had been put into tea leaves they have doubtless, in some instances, found that which had really taken place.

The ash of genuine tea leaves, however, contains iron, and by no means a small proportion of it. In a paper by Zöller (Liebig's *Annalen*, May, 1871), the percentage of oxide of iron in the ash of tea leaves is given as 4·38 per cent. The importance of this determination depends upon the circumstance of the tea having been received direct from the growers, who were personal friends of Liebig's; in that instance, therefore, there could be no question of adulteration. It may be interesting to reproduce Zöller's analysis, which is as follows:—

Potash,	39·22
Soda,	0·65
Magnesia,	6·47
Lime,	4·24
Oxide of iron,	4·38
Protoxide of manganese,	1·03
Phosphoric acid,	14·55
Sulphuric acid,	trace
Chlorine,	0·81
Silica,	4·35
Carbonic acid,	24·30
	100·00

From this it is abundantly manifest that the mere qualitative detection of oxide of iron in the ash of tea is no valid proof of adulteration; and that in order to make out a case it is necessary to show sensibly more than 4 per cent. of oxide of iron in the ash.

On the present occasion I wish to call the attention of public analysts to the importance of investigating the ash of samples of tea. Zöller found the ash of tea leaves to be 5·63 per cent., using in his investigation tea leaves of guaranteed purity. I find that commercial tea yields a very similar result, as is seen from the following analysis made in my own laboratory:—

	Percentage of ash.
Specimen of tea used by myself,	5·63
Civil Service tea,	5·56
Horniman's tea,	5·99
Mandarin's tea, 8s. per lb.,	5·30
Orange Pekoe, 5s. per lb.,	5·84
" " "	6·06
Green tea, 4s. 6d. per lb.,	5·86
Average,	5·75

These determinations were made on tea in its ordinary air-dried condition, and agree sufficiently with Zöller's. The proportion of ash in absolutely dry tea is 5·92 per cent.

Zöller further calls attention to the composition of the ash of spent tea leaves. This, as might be expected, is far less rich in alkalies, being far less soluble. Zöller's analysis is as follows:—

Potash,	7·34
Soda,	0·69
Magnesia,	11·45
Lime,	10·76
Oxide of iron,	9·53
Protoxide of manganese,	1·97
Chlorine,	trace
Phosphoric acid,	25·41
Sulphuric acid,	trace
Silica,	7·57
Carbonic acid,	25·28
	100·00

This ash, as a matter almost of course, must be composed mainly of material insoluble in water.

For practical purposes, that is to say for use by the public analysts, a complete analysis of the ash would be too cumbrous and troublesome. A great deal of information may, however, be gathered from a tolerably simple operation, viz., from a determination of the relative quantities of soluble and insoluble ash in tea leaves. With the object of rendering a determination of this sort available, I have made such determinations on dried leaves of various kinds. The leaves, with the exception of the tea and Paraguay tea leaves, were gathered by my assistant on the 24th of August this year. The following are the results :—

	Percentages on the dried leaves. The Ash.		
	Total.	Soluble in Water.	Insoluble in Water.
1. Common tea,	5·92	3·55	2·37
2. Paraguay tea,	6·28	4·22	2·06
3. Beech,	4·52	2·00	2·52
4. Bramble,	4·53	1·84	2·69
5. Raspberry	7·84	1·72	6·12
6. Hawthorn,	8·05	3·78	4·27
7. Willow,	9·34	4·16	5·18
8. Plum,	9·90	5·66	4·24
9. Elder,	10·67	3·19	7·48
10. Gooseberry,	13·50	7·83	5·67

From this table it will be apparent that the ash of Paraguay tea is the only ash capable of being mistaken for the ash of tea ; the total percentage would of itself exclude all the others. The ash of Paraguay tea, is, however, distinguished from the ash of common tea by containing a higher proportion of soluble matter.

The ash of beech and of bramble is distinguished from that of tea by being too small in amount, and by containing too little soluble matter. All the rest are exceedingly unlike tea ash.

The determination of the total, the soluble, and the insoluble ash in leaves are made with great facility. Dried leaves burn up with great ease ; and, for the purpose of getting a complete combustion there is no occasion for the employment of nitric acid. I am in the habit of employing about 2 grms. of the dried leaves for the experiment. These I burn in a small platinum dish, and when the resulting ash has become grey, I allow the dish to cool and weigh it together with its contents. The ash is then heated to boiling with a little water, and the solution filtered, and the filtrate evaporated to dryness in a small platinum dish ; the resulting residue is then ignited, cooled and weighed. Thus I get determinations of "total ash" and "soluble ash ;" the "insoluble ash" is found by difference.

Sand is sometimes found in tea leaves ; this is very easy of detection. It will, of course, remain in the insoluble portion of the ash, and refuse to dissolve when that is treated with hydrochloric acid.

The portion of real tea ash which is insoluble in water is almost entirely soluble in hydrochloric acid.

Very many uses may be made of a determination of the ash in a sample of tea. As an example of what may be learnt from such determinations, I will cite an imaginary case, which, however, finds its parallel in practice. Let us suppose that the tea yielded the normal proportion of ash, viz., 5·75 per cent. on the air-dried leaves, and let us suppose that one-third of this consisted of sand. With these data before him the analyst would be justified in finding, not only that there was a little sand in the tea, but that at least one-third of the sample did not consist of genuine tea, but either of some other kind of leaf or of spent tea (which is not so rich in ash as genuine tea).

On a future occasion I hope to publish further researches on tea, and will conclude with an expression of my conviction that a little careful chemical work bestowed on the subject of tea will render the examination of it highly certain and satisfactory.—*Chem. News*, *Oct.* 10, 1873.

A REVOLUTION IN THE MANUFACTURE OF CARBONATE OF SODA.

By Dr. Rudolph Wagner.

Six years ago, when the international jury at the Paris Exposition expressed their opinion upon the state of the soda industry at that time, all the judges, whether practical or theoretical men, believed that Leblanc's process would hold the field for a long time yet. This seemed still more probable since a process had just been introduced for recovering the sulphur from the soda residues. At that time all the soda in use was prepared by this process, excepting a comparatively small amount obtained from Chili saltpetre and cryolite, although there were already tangible indications that soda could be made on a large scale by another method which would be cheaper than Leblanc's process.

The chemical section of the international jury at the Vienna Exposition, under the presidency of Prof. A. W. Hofmann, constituted a congress of chemical technology. By its labors during the course of the summer this congress of scientific men was able to authenticate the very important fact that although Leblanc's process might in the future possess some importance for certain branches of the industry, yet in most places another soda process would be introduced in the immediate future, and entirely supersede that of Leblanc. Since the time of the Paris Exposition this new process has grown from a small germ to a strong tree.

The process in question, and which is called by Prof. A. W. Hofmann the ammonia process, is not new from either a chemical or scientific point of view. It belongs to the same class of methods as those in which oxide of lead, bicarbonate of magnesia, quick lime, alumina, silicate of alumina, oxide of chromium or fluosilic acid are employed to decompose chloride of sodium and convert it directly into soda or its carbonate. None of these attempts met with a success deserving of notice, although for a century past efforts have been made to render them practically operative. The new process is founded upon a reaction noticed over thirty years ago—that of bicarbonate of ammonia upon a strong solution of common salt. The greater part of the sodium is precipitated as a bicarbonate, while chloride of ammonium remains in solution, from which the ammonia for a second operation is expelled by quick lime. The carbonic acid necessary to convert the ammonia into bicarbonate of ammonia, and thus make the process a continuous one, is obtained by heating the bicarbonate of soda to convert it into the simple carbonate.

The sensation which the ammonia process has created in industrial circles will render a brief history of its development not uninteresting.

So far as I know, Harrison, Dyer, Grey and Hemming were the first to patent the ammonia process in Great Britain in 1838.* "Great expectations" were excited by it, but it soon sank into oblivion. Thirty or forty years ago the manufacture of soda was by no means at the head of the great branches of industry; at that time, too, ammonia was not to be had cheaply and in immense quantities, and that branch of machine building which has furnished the necessary apparatus for chemical industries did not exist. Besides this, Anthon, of Prague, in 1840, claimed to have proved that in the ammonia process a very considerable portion of the common salt remained undecomposed.

After a sleep of sixteen years the ammonia process again entered the field. On the 26th of May, 1854, Turck took out a patent in France, and on the 21st of June, the same year, Schlœsing, chemist of the Imperial tobacco factory at Paris, took out a patent for France and Great Britain. The mechanical portion and machinery for Schlœsing's process were designed by Engineer E. Rolland, director of the tobacco factory. In 1855 a company was organized to work this process. An experimental manufactory was started at Puteaux, near Paris, but owing to its situation and arrangements as well as to the salt monopoly, it could not produce soda cheap enough to compete with the other process, and hence, in 1858, the experiment was abandoned. Schlœsing and Rolland were of the opinion that sooner or later the new process must come into use in making soda.

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* "Mechanics' Magazine," xxxi, page 48.

It must here be noticed that in 1858 Prof. Heeren, of Hanover, subjected the ammonia process to a very careful test in his laboratory. From his experiments and calculations it was ascertained that this process was better adapted to the manufacture of bicarbonate than of the simple protocarbonate of soda.

To render this sketch more complete and historically true, it must be mentioned that T. Bell, of England, took out a patent Oct. 13, 1857, for a new soda process, which in principle and practice was almost literally the same as that of Dyer.

It was known when the jury was working at Paris in 1867 that essential improvements had been introduced into the ammonia process by the efforts of Margueritte and de Sourdeval, of Paris, and James Young, of Glasgow. A more important fact, however, is that Solvay & Co., of Conillet, in Belgium, actually exhibited at the Paris Expotion carbonate of soda prepared by this new process.

Since that time the ammonia process has been developed and perfected to such an extent, especially by Solvay, Honigmann and Gerstenhœfer, that as early as February, 1873, Prof. A. W. Hofmann, in his introduction to the third group of the catalogue of the Exhibition of the German Empire. was able to make this remark: "At all events the ammonia process is the only one which threatens to become an important competitor of the now almost exclusively employed process of Leblanc." The Vienna Exposition has since proved the truth of his assertion.

There are now large soda works in England, Hungary, Switzerland, Westphalia. Thuringia and Baden, which employ the improved ammonia process, and some of them make fifteen tons of soda per day.

The advantages of the new process over that of Leblanc are very evident, although the details of the process have not yet been made public. The chief advantage consists in the direct conversion of salt into carbonate of soda, and next in the fact that from a saturated brine only the sodium is precipitated, with none of the other metals of the mother liquor. Besides this, the product is absolutely free from all sulphur compounds, the soda is of a high grade, the apparatus and utensils are very simple, there is a great saving of labor and fuel, and no noxious gases and waste products are produced, which is of importance from a sanitary point of view. The only weak point of the ammonia process is the loss of the chlorine, which is converted into worthless chloride of calcium.

The effect which the general introduction of the new soda process will exert upon large chemical industries in general, and especially upon the consumption of sulphur, the manufacture of sulphuric acid, and the price of muriatic acid and chloride of lime, cannot be overlooked.—*Journ. of App. Chem.*, *Nov.*, 1873.

GLYCERATE OF SUCRATE OF LIME AND ITS EMPLOYMENT IN THE PREPARATION OF CHALK LINIMENT.*

By M. Latour.

A recent explosion at Mont Valérien, the victims of which were treated in the military hospital of Saint-Martin, where the author is pharmacien principal, gave him an opportunity on a large scale of profiting by a rapid method of preparing an oleo-calcareous liniment, which he has practiced for some time with satisfactory results. It is specially when it is necessary to prepare such a compound quickly and in considerable quantities that he considers the process presents real advantages. The new ingredients also that he introduces give the compound special qualities, which he thinks would render it suitable for employment in a great number of cases,—such as severe burns, erythema, erysipelas, variable eruptions, chilblains, etc.—where the skin is the seat of more or less inflammatory symptoms.

At first M. Latour employed the solution of sucrate of lime; but in order to avoid the formation of carbonate of lime through the absorption of carbonic acid from the air, he tried the addition of glycerin. This led him to study the solubility of sucrate of lime in glycerin, and finally to construct a formula representing nearly the limit of this solubility and furnishing a dense product of constant composition, to which he has given the name of saturated glycerate of sucrate of lime. This, in a certain state of dilution, he uses to prepare his new chalk liniment.

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* Répertoire de Pharmacie [n. s.], vol. i, p. 557.

Solubility of Sucrate of Lime in Glycerin.—Sucrate of lime is very soluble in glycerin and the addition of water and heat hastens the solution. The temperature may be raised to the boiling point without fear of the coagulation of the monobasic sucrate of lime, which is prevented by the glycerin. The following two experiments had for their object to compare the solubility of sucrate of lime in water and in glycerin, separately :—

(*a*) Fifty grams of dry sucrate of lime, in fine powder, were treated with 100 grams of distilled water, at from 75° to 80° C., the liquor filtered, and the proportion of lime determined by an alkalimetric operation. Ten grams of the solution gave 0·4958 gram of lime corresponding to 3·646 grams of sucrate of lime. The solution was coagulated by heat.

(*b*) One hundred grams of dry sucrate of lime, in fine powder, were treated with a mixture of equal portions of water and glycerin (100 grams of each), at a temperature of 75 C., and the liquor filtered. The filtration was slow. An alkalimetric estimation showed that 10 grams of liquor contained 0·5161 gram of lime, corresponding to 3·756 grams of dry sucrate of lime. In this case heat did not cause the monobasic sucrate of lime to coagulate.

In comparing these results it must be admitted that the solubility of sucrate of lime is nearly equal in water and in glycerin. The slight difference is due to a peculiarity that is worth mentioning. During the evaporation of the sucrate of lime to obtain that compound in a dry state there is formed a small quantity of carbonate of lime. If the sucrate be treated with water traces only of the carbonate formed go into the solution, whilst in the mixture of water and glycerin the whole is dissolved. In fact, if a few drops of hydrochloric acid be added to each of the solutions there is a notable disengagement of carbonic acid from the glycerate, but only a very feeble one from the aqueous solution. This would explain the slight difference in the two experiments.

Saturated Glycerate of Sucrate of Lime.—Without having recourse to the use of dry sucrate of lime, and in order to shorten the operation, a nearly saturated solution of sucrate of lime may be obtained by adopting the following formula :—

Slaked Lime, ...	200 grams.

Powdered Sugar	400 grams.
Water	2 kilograms.
Glycerin	400 grams.

Mix the sugar and lime thoroughly in a mortar; add the water in small portions, so as to obtain a clear pulp without lumps. Put the mixture into a stoppered flask. After contact for twenty-four hours, filter, and add the glycerin to the solution, then evaporate until it is reduced to one litre. It is essential not to add the glycerin until after the filtration of the solution of sucrate of lime, or the filtration will be retarded.

The glycerate of sucrate of lime thus prepared has a density of 1·280 at 15° C. It is not coagulated by boiling; but coagulation takes place if it be diluted with four times its volume of water. It contains, by volume, in 100 cubic centigrams, 7·716 grams of lime, corresponding to 56·55 grams of dry sucrate of lime; by weight, in 100 grams, 6·720 grams of lime, corresponding to 49·42 grams of dry sucrate.

Applied to the skin this glycerate of sucrate of lime forms a kind of varnish, which under the influence of transpiration is detached in the form of lumps; upon inflamed surfaces it produces a feeling of coolness and comfort. More decided drying qualities may be imparted to it by dissolving in it, with heat, about 3 per cent. of gelatin.

Dilute Glycerate of Sucrate of Lime.—Preparation of Chalk Liniment.—For the preparation of chalk liniment with the glycerate of sucrate of lime it is preferable to use a dilute solution, such as exists before the mixture is concentrated, as directed in a preceding paragraph. It then has a density of 1·144 at 15° C., and contains, by volume, in 100 cubic centigrams, 3·512 grams of lime, corresponding to 26·05 grams of dry sucrate of lime; by weight, in 100 grams, 3·289 grams of lime, corresponding to 24·19 grams of dry sucrate.

The formula for the liniment of the glycerate of sucrate of lime is as follows:—

Ground Nut Oil	200 grams.
Dilute Glycerate of Sucrate of Lime. .	100 "

Mix in a vessel having a large mouth.

By substituting oil of sweet almonds, a mixture is obtained that is a little less solid. In certain cases where it is desired to combat the odor which is given off from the profuse suppuration of severe and extensive burns, the simple oil may be replaced by camphorated oil.

Dr. Lagarde, who used this preparation in the treatment of the soldiers injured in the before-mentioned explosion, reports that it fulfils the principal requisites sought for in application to burns; that it efficaciously protects the injured surface from contact with the air, does not adhere to the wound, diminshes the pain, modifies the suppuration, and hastens and controls the cicatrization. It is easily used, and may be renewed without causing pain to the patient. Dr. Muller has also used the liniment in the same hospital, in cases of erysipelas of the face.—*Pharm. Jour. and Trans., Oct.* 25, 1873.

THE ESTIMATION OF PHOSPHORUS IN FATTY MIXTURES.*

In order to separate phosphorus from articles of food, vomits and other matters containing fatty substances, in such a state of purity that it may be unfailingly recognized by characteristic properties, and produced in court as evidence, D. A. van Bastelaer gives a process already found of advantage in several judicial inquiries, which is based essentially on the solubility of phosphorus in ether, and its almost perfect indifference towards solution of ammonia if in contact with it for only a short time. If the substance from which phosphorus is to be separated is not fluid, *e. g.*, phosphor paste, it is first reduced by addition of water to the condition of a sufficiently thin pap, in order that it may be thoroughly mixed with ether by agitating for some seconds. Not only the weight of the original substance taken, but also that of the added water is noted. After the reduction, about 100 grams, or any other suitable weighed quantity of the fluid mass is taken, mixed with as much ether, and left in contact therewith in the cold for four or five hours, during which period the mixture is to be violently shaken at frequent intervals. The ether being now decanted, is replaced with an equal quantity of fresh ether, and these operations are repeated about three times. The united ethereal liquids, protected from dust, are allowed to evaporate spontaneously at 15°—20° C. in a shallow dish. At this point some water is added, that the phosphorus may be protected from the action of the air after evaporation of the ether. If what remains after removal of the ether be gently warmed to 50°—60° C., the phosphorus unites itself with a portion of the fat, forming a fluid globular mass under the water, whilst the remainder of the matter taken up by ether rises to the surface as a thin film. The globule containing phosphorus is now treated with about 10 to 15 grams of strong aqueous ammonia in a small flask and violently agitated. This treatment is repeated a few times. Lastly, if the adhering ammonia be removed by washing first with water acidulated with sulphuric acid, and then with pure water, the phosphorus remains behind, certainly somewhat soft in consistence, but otherwise exhibiting all the physical and chemical properties which characterize it. It may be brought in a little glass tube and handed to the judge as *corpus delicti.—Phar. Jour. and Trans., Oct.* 18, 1873.

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* *N. Jahr. f. Pharm.*

Varieties.

Lead Poisoning from Hair-Dye.—Dr. Crocker reports the following: During the month of February, R. W., aged fifty-five years, applied to him for relief from pains, similar to those which characterize muscular rheumatism. In addition to pains in the deltoid and other muscles of the shoulder, he suffered from partial paralysis of both arms. The disease appeared to yield under the influence of simple remedies, but later it was noticed that there was almost complete paralysis of the extensors of the fingers. The patient could seize objects forcibly, but found a difficulty in letting them go. As he had suffered for several years from occasional attacks of colic, his gums were examined, but no metallic stain could be seen. After the water of the dwelling had been tested and the kitchen utensils suspected, it was found that he had, for the last fifteen years, made use of a hair-dye, which he prepared himself, as follows: To one pint of water, add one teaspoonful of acetate of lead and three teaspoonfuls of sulphur. This he was accustomed to use at least once a week. This lotion was interdicted, and, under the influence of iodide of potassium and electricity, he made a good recovery.—*N. Y. Med. Journ., from Union Médicale.*

Nitrate of Zinc as a Caustic.—M. Lefort describes (*Journ. de Pharm. et de Chimie*, May, 1873) a caustic paste prepared from nitrate of zinc, which has been reported on favorably by Drs. Clément and Desgrange, at the Hôtel-Dieu, Lyons. The nitrate is prepared by dissolving commercial zinc with heat in equal volumes of nitric acid and water, maintaining an excess of zinc, and concentrating until a slight basic precipitate is formed, which carries down any iron present. Boiling water is then added, and, when cool, the solution is filtered, and evaporated at a gentle heat until slight ebullition takes place; if then left to cool, it forms a cake, which should be broken up and drained in a glass funnel. Of the nitrate of zinc so prepared, 100 grams are dissolved in 50 grams of water, and afterwards incorporated with 50 grams of wheaten flour. This forms an homogeneous paste, which remains soft, spreads easily over surfaces without afterwards contracting, and does not spread at the edges through absorption of moisture. When made into cylinders, it should not be dried by heat, as it slightly decomposes and becomes yellow and friable; it may be kept dry by placing it in a tin box with some pieces of quicklime, but not in contact with them.—*Am. Journ. Med. Sciences*, Oct. 1873. from *London Medical Record*, June 18, 1873.

Local Applications of Chloral.—Chloral, besides its hypnotic properties, seems to possess an antiputric action. Either the hydrate of chloral, or what is called metachloral, may be used. The latter, according to Dumas, is prepared by placing in a bottle with an emery stopper some chloral and five or six times its weight of sulphuric acid. The next day the chloral is transformed into metachloral, which must be well washed with water to remove the sulphuric acid. It is a coarse white powder, smelling strongly of chloral, hardly soluble even in boiling water, and distilling between 150° and 200° C. without melting. Regnault has shown that it is similar in composition to chloral, and its formula is $C_4\,H\,Cl_3\,O_2$, being simply an isomeric modification of chloral. Dr. Dujardin-Beaumetz, of Paris, has lately experimented on the local application of chloral as a caustic or modifying agent and a local anæsthetic. It may be applied in substance, which mode is rather difficult, or in solution of different strength—namely, one or two per cent. in water or glycerin. Metachloral is applied in powder upon foul wounds, replacing advantageously iodoform, the smell of which is so disagreeable. Cases are given where the application of chloral has been of much use in gangrene, phagedena, rodent ulcers, lardaceous ulcerations, certain diseases of the skin, lupus, and for modifying the cavities of abscesses, etc. It is of much value in relieving the pain of cancerous ulcerations; and, as chloral possesses the property of preventing decomposition of the urine, Dr. Beaumetz thinks that in certain diseases of the bladder it may be usefully injected into that viscus.—*Am. Journ. Med. Sciences*, Oct. 1873, from *Lancet*, Aug. 30, 1873.

Examination of Grape Sugar and Milk Sugar.—M. Campani employs as reagent a concentrated solution of subnitrate of lead, mixed with a dilute solution of acetate of copper. The liquid to be tested is added to 5 c. c. of this solution and raised to a boil. If grape sugar is present the mixture becomes colored, and gives a yellow precipitate. Cane sugar has no action. A dilute solution of milk sugar behaves like grape sugar. If the solutions of these sugars are concentrated the precipitates are brick-red.—*Chem. News*, Sept. 26, from *Les Mondes*.

Minutes of the Pharmaceutical Meeting.

The regular Monthly Pharmaceutical Meeting was held on Tuesday afternoon, Nov 18th, 1873. 21 members present.

Peter Williamson, one of the original founders of the College in 1821, was present, and on being called to the President's chair, addressed the meeting in a few appropriate remarks, in which he referred to the progress made in pharmacy since the time when the College was founded.

The minutes of the previous meeting were read and approved.

Donations to the Library and Cabinet being in order, Prof. Maisch presented to the Library a Catalogue published by the Department of the Interior, called A Circular of Information of the Bureau of Education. The thanks of the meeting were directed to be forwarded by the Registrar.

Samples of Myrcia acris, Eucalyptus globulus, bark and oil of E. globulus, were presented by Jas. T. Shinn, from W. Neergaard, of New York. A specimen of apomorphia was also exhibited, and it was stated that one grain placed on the tongue would be followed by emesis in six minutes. 1-10th of a grain administered hypodermically produced the same effect.

Prof. Maisch presented to the College cabinet a beautiful specimen of the leaves and fruit of Chondodendron tomentosum, which had been sent by Daniel Hanbury, of London. The paper illustrated by the specimens was republished in the American Journal of Pharmacy, October, 1873.

Richard V. Mattison read a paper on Pancreatin, in which he detailed a process of preparation analogous to that of E. Scheffer's for making Pepsin. The solution of Pancreatin was found to possess the property of emulsifying cod liver oil readily. The paper will be found in full in this number.

Prof. Maisch read an article from W. M. Rice on Emulsifying Cod Liver Oil, in which the writer used tragacanth as the medium. A sample was exhibited made by his process, in which the taste of the oil was thoroughly disguised. A discussion here arose as to what, in the opinion of the members present, constituted a good emulsion. Jas. T. Shinn advocated thin emulsions, and did not favor the dispensing of thick emulsions, for he thought that the patient could readily incorporate the water and oil that had partially separated by standing, and would prefer to do it rather than take a thick emulsion. Jos. P. Remington stated that he had made and dispensed a cod liver oil jelly, made on the same principle as the emulsion of Mr. Rice's, and the formula would be found at page 175 of the present volume of the Journal, extracted from the London *Pharmaceutical Journal* of March 8th, 1873. This jelly seemed to give satisfaction wherever it was used; but it was necessary to use only the finest and freshest oil. Prof. Maisch spoke of the use of alkaline solutions in emulsions, and of the tendency of such to spoil if kept too long and become disagreeable to the taste.

A member wished to know of Mr. Rice whether a smaller quantity of tragacanth could not be used in the formula.

To this F. Stryker Boisnot replied that both Mr. Rice and himself had tried various proportions, and found that they could not use less.

R. V. Mattison said that gum arabic and sugar had proved to be the best in his experience for thick emulsions, and solution of pancreatin for thin ones.

Dr. A. W. Miller read an interesting paper on Cosmolin, and exhibited a number of specimens. He said that cosmolin amounted to nothing more than paraffin dissolved in what is technically termed neutral oil. He showed a sample made in this way, which resembled cosmolin very closely. It could be sold at a fair profit, if made in this way, for 25 cents per pound, whilst cosmolin costs three times that. His paper will be found elsewhere. President Williamson remarked that petroleum, paraffin, cosmolin, &c &c, had all come up since his day; but even in old times they had petroleum. An article called Seneca Oil used to sell freely for 11 d. per ounce which was petroleum collect ed by the Indians. It was found floating on the water in certain parts of Pennsylvania, and by absorbing it by a blanket and wringing it out, it was collected in small quantities and commanded a good price. It was used for liniments, &c. &c.

J. P. Remington read a note on Aromatized Waters, advocating the use of the compound waters in preparing elixirs, &c. &c. The note will be found in this number of the Journal.

Prof. Maisch spoke of a process for preparing distilled water which had been communicated to him over a year ago by Mr. George G. Percival, of Waterville, Me., but, at the author's request, was not published then Mr. Percival found that volatile oils are very freely soluble in boiling water, so that he has taken a patent for obtaining volatile oils on a large scale by a process based thereon. He suggests to dissolve the volatile oils in hot distilled water; on cooling, a turbid solution results, showing that the water is a saturated solution. By filtering, as perfect an aromatized water as can be made from volatile oils is obtained.

Jas. T. Shinn preferred distillation, and said that he made an imitation of Curacoa cordial by distilling the oils with water and then mixing with sugar, and coloring.

On motion of S. M. McCollin, the above papers were referred to the Publication Committee.

The meeting then adjourned.

Joseph P. Remington, *Registrar.*

Editorial Department.

The New Construction of the Internal Revenue Law.—On pages 518 and 519 of the November number of the "American Journal of Pharmacy" will be found an account of the action had by the Philadelphia College of Pharmacy. We now give in full to our readers the report of the committee of this College of the interview had with Commissioner Douglass October 1st:

To the Philadelphia College of Pharmacy:

Your Committee, appointed at the last meeting of the College, proceeded to Washington on afternoon of September 30th, in company with a committee, appointed for a similar purpose, from the Philadelphia Drug Exchange, consisting of two members, Chas. Bullock and Alex. H. Jones.

At 9 o'clock on the following morning the Joint Committee waited on the author of all of our Revenue troubles, and informed him of the occasion of our visit. At first he did not seem to regard the situation in the most favorable light, but a happy thought occurring just at the right time (we allude to Mr. Kimball, the assistant, who is really the originator of the astute productions), he summoned his aid, and the battle began.

Robert Shoemaker, having seen service in former visits, introduced each member, and then laid before the doughty Knights of the Stamps the grievances under which we groan and suffer. The views of the several bodies represented were brought out, and the manner in which the decision would affect the whole trade was dwelt upon at length; a full and free interchange of opinion was had, and, although the discussion was conducted with courtesy at all times, it was evident to all of the members of the Committees that the position held by the Commissioner and his assistant was not to be *visibly* shaken by any arguments that could be brought to bear.

The discussion soon narrowed down to the point, In a medicine, what constitutes similarity in style to a patent or proprietary medicine? and here we found the Commissioner more ignorant than an ordinary country school-boy. When Chas. Bullock stated that such common officinal articles as laudanum, paregoric, castor oil, sweet spt. of nitre, sweet oil, &c., &c., were largely put up by wholesale druggists for consumption in country stores, going very often in sparsely populated districts, where physicians could not be called readily, he said that he never knew of the medicines mentioned ever being sold except by physicians' prescription, and he had an opportunity of knowing. Further on in the discussion a member asked if they had called in any experts to confer with them in regard to recent decisions. He said that they did not think it at all necessary, as the law was there and they were competent to decide upon it. He accidentally or purposely let fall the remark subsequently, that he was a Homœopath, and never took any of the medicines himself. Notwithstanding the fact that the only surviving member of the original committee of experts who were called in when Sect. 13th of Act of July 13th, 1866—the very section about which there is so much trouble—was present, and clearly explained the intention of the framers of the act, he still was unwilling to reverse his decision or yield one inch.

Each member of the Committee protested earnestly against being required to stamp ordinary retail counter sales of officinal articles, or of any medicine the formula of which is public property, and they claimed that such articles of materia medica were exempt under Sect. 13th of the Act of July 13th, 1866, which plainly says:

> Sec. 13. *And be it further enacted*, That no stamp tax shall be imposed upon any uncompounded medicinal drug or chemical, nor upon any medicine compounded according to the United States or other national pharmacopœia, or of which the full and proper formula is published in any of the dispensatories now or hitherto in common use among physicians or apothecaries, or in any pharmaceutical journal now issued by any incorporated college of pharmacy, when not sold or offered for sale, or advertised under any other name, form or guise than that under which they may be severally denominated and laid down in said pharmacopœias, dispensatories or journals as aforesaid, nor upon medicines sold to or for the use of any person, which may be mixed and compounded for said person according to the written receipt or prescription of any physician or surgeon. But nothing in this section shall be construed to exempt from stamp tax any medicinal articles, whether simple or compounded by any rule, authority, or formula, published or unpublished, which are put up in a style or manner similar to that of patent or proprietary medicines in general, or advertised in newspapers or by public handbills for popular sale and use, as having any special proprietary claim to merit, or to any peculiar advantage in mode of preparation, quality, use, or effect, whether such claim be real or pretended.

But the Commissioner explained that "where physic and physician were supplied to the patient at one and the same time, as was the case where labels were used giving the name, dose and direction of the medicine, it was plain that a stamp was required." This is wisdom, indeed!

He ruled that it was not necessary to call it B's Laudanum or C's Castor Oil to render it liable; but the dose and directions were sufficient to make it stampable.

We were not prepared to hear that this law was intended to advance the interests of the physician, or indeed of any profession, nor interfere with what the public have long considered their right, but supposed that it was for the purpose of raising revenue by levying a tax on commodities which are either articles of luxury or are not absolutely necessities.

It clearly is not the intention of the General Government to gather into the treasury of the United States pennies that are wrung from the suffering and needy poor; for it is upon these that this decision bears with the most weight.

There was one glaring inconsistency in the Commissioner's position that was difficult to understand.

He explains in his Special Circular, No. 145, paragraph 10,—just issued,—what he means by a style and manner similar to patent medicines, and well has he described what an ordinary druggist would recognize as a proprietary or quack medicine. For instance, to quote

> "The leading points or characteristics of this style are (*a*), that such medicines are almost always put up in *retail packages*, packages which are sold *with their contents*, directly to the consumer; and (*b*) each package is accompanied with a label, a handbill, or a wrapper, containing an enumeration of the diseases or affections for which the medicine is a remedy or a specific; containing, also, directions as to when and how it is to be taken, what constitutes a proper dose, how frequently such doses are to be taken, etc., with such general directions with regard to the mode of administering the medicine as physicians give when called to prescribe for a patient. It is a style adapted to popular sale and use, to enable the sick to supply themselves with remedies, and to use the same without the aid or advice of a physician or medical practitioner. Medicines and medicinal preparations, whether officinal or non officinal, by whatever rule or authority, or formula compounded, put up in such a style, *in retail packages*, and accompanied with a label, a circular, or a wrapper, giving the disease, diseases, or affections for which such medicines are to be or have been applied or used, directions how to use, etc., are liable to stamp tax under Schedule C. The law makes no provision for exempting such medicines, but expressly declares that the statute *shall not be construed* so as to give exemption.'

Now, then, what consistency is there here, when he takes so much trouble and uses so much Government ink, to state *in detail* all the points that go towards making a medicine proprietary or patent, constituting a "similarity in style," and then rules that simple laudanum, *if not* put up in retail packages, but dispensed from a larger bottle over the counter as needed, IF NOT having on it a label, handbill or wrapper, containing an enumeration of the diseases or affections for which the medicine is a remedy or specific; but if it merely contains on it the name and proper dose, without which no careful dispenser would sell it, it is declared to be liable to tax. Does he rule that an offence in one particular renders the offender guilty of all?

Patent medicines have corks in them (for the convenience of the public), so have officinal medicines; Schenck's Pills and Seidlitz Powders are both put into a box, and in this particular they are "similar in style;" yet who could not tell which, in the meaning of the Act of July 13th, 1866, was exempt?

No doubt the Commissioner's answer to this would be, You supply the public with the means of curing themselves of some disease or other without calling in a physician. For this privilege the Government of the United States suffers to the extent of one cent on every twenty-five cents or under, and you must pay for it.

As instances, a number of labels for special preparations were cited by the Committee, such as "Epsom Salts—one dose," "Castor Oil—one dose,"—both require stamps; "Seidlitz Powders"—on this label the Commissioner and his assistant differed in judgment. One said that the ordinary directions, "Put the contents of a white paper into half a tumblerful of water, and the contents of a blue paper into another half a tumblerful of water; mix the two and drink," &c., &c., did not indicate the dose and directions.

We immediately took exception to this, of course, as the contents of the two papers is the dose; and, if the other rulings are just, Seidlitz powders form no exception, and must be classed with them.

The Committee at last, finding it was useless to prolong the discussion, retired. It was first proposed to stay over in Washington and await the production of a Circular that was then going through the press, but it was concluded that it would be of no avail to further engage in controversy, and having just enough time to go to the hotel, obtain our baggage and pay our bills, and catch the train, we shook off the dust of the city of magnificent distances in indignation, feeling that our profession had a gross indignity heaped upon it, in that we should be classed with quacks charlatans and rum sellers.

ROBT. SHOEMAKER,
JOSEPH P. REMINGTON.

October 20th, 1873.

The report of the Committee of the Philadelphia Drug Exchange is equally full and explicit. We copy from it the concluding sentences, giving a summary of the entire report:

1st. The name of the medicinal preparation, together with the name of the manufacturer or seller on the label, if the preparation is officinal, or of published recipe, will not require a stamp. The formula of the preparation may also appear on the label without necessitating a stamp.

2d. Mention of the proper dose of a preparation on the label will be considered as placing it in the style or manner of a proprietary or patent medicine, and a stamp will be required.

3d. A printed label giving proper dose, when put upon a medicine dispensed across the counter, will require a stamp, but the dispenser can write such a label, giving full directions, for each individual sale without being required to stamp it.

4th. Plasters will not require a stamp, being "*mechanical appliances*," provided they are not of private recipe; directions for application of the plaster not being considered in the same light *as a dose* on a remedy for internal use.

5th. On gross packages, not intended for the consumer, the dose will be permitted as information to the dispenser.

(Signed) ALEXANDER H. JONES,
CHARLES BULLOCK,
Committee.

The following correspondence, between Hon. Leonard Myers, representative of the Fourth Congressional District of Pennsylvania, and the Commissioner of Internal Revenue, has been placed at our disposal:

PHILADELPHIA, Oct. 12, 1873.

DEAR SIR.—The druggists of this city are in considerable trouble over your letter of September 9, 1873, in regard to the stamp duty on medicinal preparations.

The uncertainty as to what preparations are liable and what exempt could at any moment render the best men in this or any community subject to fine or seizure, I believe you will agree with me that the law contemplates no such hardship and no such uncertainty. The 13th section of the Act of July 13th, 1866, has not, until now, been construed to impose duties in the cases complained of, and I write in the belief that the labels and preparations submitted for your opinion were not like those which the druggists believe, and I believe, not liable to the tax. If we are wrong, then, just at a time when Congress was lightening the burthens of the people, it has unintentionally imposed upon the suffering and the poor a duty which was not demanded during the pressing exigencies of the war.

I enclose six labels used by my constituent, James Kenworthy, for the preparations respectively of "Citrate of Magnesia," "Paregoric," "Tincture of Chloride of Iron," "Jamaica Ginger," "Ipecacuanha" and "Spiced Syrup of Rhubarb"—all laid down in the U. S. Dispensatory, which he fears may under your ruling be liable to the tax, and which in my judgment are not so liable. It is true, there are directions on the labels with some reference to the qualities of the medicines; but none of these preparations are new or secret or Proprietary or Patent, or alleged to have "any special proprietary claim to merit or to any peculiar advantage in mode of preparation," etc., and therefore they are not "put up in a style or manner similar to that of patent or proprietary medicines in general."

If these are taxable then half the medicines which the people *must* buy are so taxable—an imposition of duty just the reverse of what Congress intended. It would, indeed, be contradictory if this internal tax were levied or construed to exist when Congress had (by the Act of June 6, 1872), in order to aid the suffering poor as well as to foster our industries, placed on the free list nearly all drug and dye substances not grown or produced in this country. We were willing to lose our Customs Revenues to the extent of millions of dollars annually, in order to benefit and protect the people, and certainly have no need and no right to collect it now in the shape of an internal tax.

Feeling sure you will agree with me, and awaiting your reply, I am

Yours very truly,
(Signed) Leonard Myers.

Hon. J. W. Douglass, Commissioner of Internal Revenve.

Treasury Department,
Office of Commissioner of Int. Revenue,
Washington, October 15, 1873.

Sir.—I have received your letter of the 12th inst. enclosing six labels, which you state are samples of labels used by your constituent, James Kenworthy, Esq., Druggist, which he affixes to certain medicinal articles which he puts up for sale, made, compounded or prepared according to formulas laid down in the U. S. Dispensatory, and which he fears may be regarded by the revenue officers as rendering said articles liable to stamp tax under the construction given to the law in a letter from this office addressed to Supervisor Tutton, September 9th

You state it to be your own opinion that these labels do not render the articles liable to tax, for the reason that "none of these preparations are new, or secret, or proprietary or patent, or alleged to have any specified proprietary claim to merit or to any peculiar advantage in mode of preparation," etc., *and therefore* you conclude that "they are not put up in a style or manner similar to that of a patent or proprietary medicine in general."

You further state that if these articles are taxable, then half the medicines which the people must buy are so taxable—an imposition of duty just the reverse of what Congress intended.

Enclosed I send you a pamphlet just issued from this office upon the subject of stamp tax under Schedule C. This pamphlet embodies the views of this office after careful and mature consideration of the entire subject. Trusting that this special circular will fully answer the enquiries contained in your letter with regard to the use of labels, like the samples, I have only to remark further that I have not the remotest desire or intention of depriving any person or persons engaged in the business of making, preparing, compounding or vending medicines or medicinal articles of the utmost exemptions which the law gives them; and I only ask that they will not, as your constituent seems to me to have done, deprive themselves of any rights to such exemptions, which the law otherwise intended them to have by putting up ordinary common and perfectly well known medicines and medicinal articles without any proprietary claim to merit—medicines manufactured strictly in accordance with formulas published in standard medical authorities, *in a style* or *manner similar* to patent or proprietary medicines in general.

Just to the extent that Congress intended to exempt all such articles, whatever might have been the motive, I desire that they shall be exempted. What Congress actually did intend, I can judge of only from the language of the statute. Where that declares that "nothing in this section (section 13 of the Act of July 13, 1866, and the only section of law now in force granting any exemption whatever) shall be construed to exempt from stamp tax any medicinal articles, whether simple or compounded by any rule, authority or formula, published or unpublished, which are put up in a style or manner similar to that of patent or proprietary medicines in general." I conclude that it was the intention to *tax* all medicines, no matter how simple, how common, how well-known or by whom used, that *were put up* in such style. If that is not a plain and logical inference, then I must confess that I am unable to comprehend what the language does mean.

What constitutes a similarity to the style of patent or proprietary medicines in general, is set forth in the Special No. 145, which I enclose, as also in my letter before alluded to, addressed to Supervisor Tutton. I think I am not mistaken in my views, and if not, one of two alternatives must be adopted by the makers and venders of medicines, who adopt the style which the law declares *outside* of any provision of exemption, viz., either to change such style of putting up, or stamp the packages.

Whenever Congress sees fit to provide for exempting articles under Schedule C altogether from stamp tax, I shall offer no opposition. But so long as the law remains upon the statute book, my duty is to execute it according to its clear intent, as I understand that intent from the plain, and, as it seems to me, unmistakable meaning of the language used.

Yours respectfully,
(Signed) J. W. Douglass, Commissioner.

Hon. Leonard Myers, Philadelphia, Pa.

Philadelphia, October 27th, 1873.

Dear Sir.—My reply to yours of the 15th inst. has been delayed until receipt of the pamphlet (Special No. 145), on the subject of Stamp Tax under Schedule C.

While not directly stating whether druggists' labels, such as I enclosed, rendered the preparations liable to tax, you refer me to this pamphlet for your decision, and this only confirms me in the opinion that they are not liable. You say your duty is to execute the law according to its clear intent, and I suppose no one will controvert that proposition; but when the preparations you now think liable have been publicly sold for seven years since the passage of the law without the slightest attempt by your Department to tax them, it is, to say the least, very natural that the correctness of your present decision should be questioned.

Objecting to my views that the preparation of these medicines, according to formulas of the Dispensatory, taken in connection with the simple directions of the labels, do not justify their assimilation to patent or proprietary medicines, you quote the language of the act, and claim that they "are put up in a style or manner similar to that of patent or proprietary medicines in general." Now this is exactly what I deny. There is not a patent or proprietary medicine sold which, in addition to a label and instructions, is not enclosed in a wrapper.

In paragraph 8 of your Special, you assume that a label, a hand-bill *or* a wrapper, will give the packages a "similarity of style" with proprietary articles. In this you are undoubtedly mistaken, for in the latter these three elements are combined while all medicines including what you have admitted to be exempt, have "labels" affixed to them.

This paragraph asserts that the other leading characteristic of similarity is "that such medicines are almost always put up in *retail packages*, which are *sold with their contents* directly to the consumer.

But in none of the instances where I asked your opinion, except that of "Citrate of Magnesia" (which only has the label) is the medicine sold in retail or unbroken *packages*.

They are the medicines in hourly demand, put up and sold in the quantities called for. Nor has Congress levied or intended to levy a tax upon them.

You will find, on a closer examination, that these articles are exempt even under your own rulings, and confident that your sincere desire is to carry out the law, I do not believe you will endeavor to strain a point against the people in order to obtain a revenue which, until now, has never been demanded.

Very respectfully yours,
Leonard Myers.

Hon. J. W. Douglass.

Treasury Department,
Office of Commissioner of Int. Revenue,
Washington, Nov. 10, 1873.

Sir.—I have received your note of the 6th inst., calling my attention to the fact that no reply has been received to your letter of the 27th ult., and stating further that since you wrote to me on the subject of stamping medicines, the papers speak of a modification of your (my) order, so far as relates to medicines sold in quantities called for by consumers, and asking for a reply to your letter as above, and also asking me to state the substance of this decision, meaning, I suppose, the alleged modification of my order.

In reply, I have to state that, as you made no specific inquiry or asked for any further information relative to the views of this office on the subject in addition to those communicated to you in my letter to you of the 15th ult., and in the published circular issued from this office—copy of which was sent you—I saw nothing in your letter calling for a reply, unless it might be the declaration contained therein in the following words: "You say your duty is to execute the law according to its clear intent, and I suppose no one will controvert that proposition; but when the preparations you now think liable have been publicly sold for seven years since the passage of the law, without the slightest attempt by your Department to tax them, it is, to say the least, very natural that the correctness of your present decision should be questioned." It is to the last part of this declaration made by you, which applies no less to my predecessors in office as Commissioner, from and including Mr. Rollins to the present time, than to myself, to which I, for myself and on behalf of them, would reply; and I now assert, in the most positive terms, and with the amplest evidence before me of the correctness of what I say, that from the time of the passage of the Act of July 13th, 1866, to the present time, this office has held the same views regarding the liabilities of medicines and medicinal articles, not known or claimed to be patent, proprietary, or made by any secret or unpublished formulas, when such medicines were put up in style similar to that of patent or proprietary medicines in general, etc. This doctrine, decision, ruling or requirement of law, however one may please to term it, was published May 10 1867, in instructions to revenue officers, Series 3, No. 10, repeated May 1, 1869, in Series 5, No. 10, reiterated again July 31, 1871, and given forth in letters without number sent from this office north, south, east and west, in answer to letters of correspondents, either officers of the revenue, manufacturers, compounders or venders of medicinal articles.

My letter to Supervisor Tutton, of September 9th, and the printed circular latterly issued from this office, communicate no new doctrine, ruling or decision of this office on the subject of stamp tax under Schedule C. They do define, as we understand it, the style or manner in which patent or proprietary medicines in general are put up, and they do declare that any and all medicines, no matter how simple or how compounded, whether the rich man's medicine or the "poor man's," which are put up in such style as there defined, are not within the provisions of exemption from stamp tax.

Whether the views and instructions of the circular on this point of "style" are correct or not, will be a matter for the Courts to decide. I believe they are, and I have neither seen nor heard, thus far, since their publication, any reasons which lead me to doubt their correctness. I am aware that persons have misrepresented, perhaps misapprehended the views of this office, and the statements made, or alleged to have been made by me in a familiar conversation with gentlemen claiming to represent the Philadelphia College of Pharmacy and the Drug Exchange of that city, are written out from memory and published in pamphlet form, with other matter, for distribution to the trade, as my views or the views of the office upon matters thus set forth; but upon this matter I have only to say that I hold myself and the Office of Internal Revenue responsible, *only* for its own authoritatively published rulings and decisions.

I return to you the labels of James Kenworthy, enclosed in your previous letter, and with reference to them I have further to say that such articles as are indicated on these labels, or any medicinal article, put up in bulk packages from which druggists, apothecaries or physicians dispense them to, or for, sick patients, and not put up in small packages in advance of any call for them by or for such patients; or, in other words, not put up *in advance* by the maker, manufacturer or vender "for popular sale and use," are not held by this office or by Special 145, or by any other published authoritative special or circular, or printed decision, that I am aware of, as liable to stamp tax by reason of any label attached thereto, by the manufacturer of such article having written or printed thereon either the relative strength of the drug or medicine, or what may otherwise be regarded as giving such relative strength, viz., the maximum and minimum dose proper to be administered in ordinary cases.

Further, the placing upon any bottle of medicine or drug, whatever the size of such bottle a label with these words, "The contents of this bottle are poisonous," would not render such bottles liable to be stamped.

I am yours respectfully,

J. W. Douglass, Commissioner.

Hon. Leonard Myers, Philadelphia, Pa.

To this correspondence we append the following note from Committee of College and Drug Exchange:

The Committee from the Philadelphia College of Pharmacy and from the Drug Exchange presented to Mr. Douglass, Commissioner of Internal Revenue, their credentials from the bodies they represented.

The report of the Committee of the Drug Exchange contains substantially the result of the interview. No *misrepresentation* was intended, and if there was *misapprehension* on the part of the Committee it was the misfortune of the Department in not making its views clear in dealing with a subject with which it evidently was not familiar.

The Committee were impressed with the intention of the Department not to permit the mention of *dose on any label*, whether dispensed extemporaneously or put up ready for sale, and to elicit more distinctly the design of the Department in respect to extemporaneous sales, the Committee dwelt at some length upon that subject. It was as gratifying as unexpected when official information subsequently reached us that the *dose* printed on a label would be permitted when the medicine was put up on call.

The "new departure," as all in the trade fully understand, lies in the construction as to what constitutes "the style or manner similar to that of patent or proprietary medicines in general." The Department says mention of dose on the label of a consumer's package, when not put up especially for said consumer, sets up such a style or manner; experts, long in business, say it does not; and herein lies the controversy. The "departure" is radical; the tax is on information. The article can be manufactured and sold without stamp duty; but information brings the stamp. *Revenue* from a law so intended would be too precarious to be seriously entertained! The "form and manner of a patent medicine" is well understood by druggists. The Department acknowledged that no druggist or expert had been consulted as to what, in the opinion of the trade, set up such "a style or manner." Had this precaution been taken, we would probably have escaped the unpleasant contention of facts *versus* construction.

Joseph P. Remington,
Robt. Shoemaker,
Committee from Philadelphia College of Pharmacy.
Chas. Bullock,
Alexander H. Jones,
From Drug Exchange.

The following report refers to the action of the Philadelphia College at its meeting held October 21st:

The Committee appointed by the Philadelphia College of Pharmacy to endeavor to bring before the U. S. District Court a case testing the validity of the construction of the Commissioner of Internal Revenue as to what constitutes the "style or manner of patent or proprietary medicines in general," under Section 13th of the Act of July 13th, 1866, called upon the U. S. District Attorney to learn whether such a case could come before the Court in November; having ascertained that it was likely that the Court would hear the case, they with their attorney waited upon the Supervisor of Internal Revenue of this city, and stated the wish of the druggists to have the contest of opinion settled by judicial exposition, so far as this district was concerned.

The Supervisor declined to go into Court except upon a suit brought against him for recovery of property confiscated. The Committee were aware that in a suit instituted in this way no decision could be obtained for three or four months, before which time they hoped that the obnoxious construction of the law would be modified, or the section repealed.

Robt. Shoemaker,
Chas. Bullock,
For the Committee.

The new construction by Commissioner Douglass of the Internal Revenue Law has, as might have been expected, aroused the druggists and pharmacists throughout the country. All organizations, as far as heard from, are unanimous in their opinion that an united effort should be made during the approaching session of Congress to either have the rulings of Commissioner Douglass set aside by legislative action, or to have that section of the law repealed altogether, which, under the new construction, is excessively oppressive and vexatious to the druggists and to the public at large.

The Philadelphia Drug Exchange has passed the following resolution:

That the proceedings of the former meeting, together with the report of the Committee read before this meeting, be embraced in a circular, to be issued to the druggists throughout the United States, asking their co operation by bringing all the influence in their power to bear upon their respective Congressional representatives, to have repealed, at the next session of Congress, all that portion of "Schedule C" which refers to medicinal preparations.

The pamphlet has been issued and extensively distributed by the following Committee, appointed for this purpose: William Gulager, Alexander H. Jones, Charles Bullock, Henry H. Rittenhouse and Benjamin V. Mein.

At a meeting of the Board of Directors of the Louisville College of Pharmacy, held November 10th, the following preamble and resolutions were adopted:

Whereas, The recent construction of "Schedule C" of the Internal Revenue Laws by Commissioner Douglass, addressed to Supervisor Tutton, of Philadelphia, has been brought to our notice; in consideration of the high authority from which it emanates, and of the great confusion of the whole subject of stamp duty arising out of this decision, manifestly at variance with the opinions of all former commissioners of Internal Revenue; and

Whereas, The numberless medicines and preparations required to be stamped in accordance with the said definition of the law, render it next to impossible to be complied with in the daily routine of business, and, notwithstanding every precaution upon our part, we, or our employees, will be liable unintentionally to err; therefore

Resolved, 1. That this College, as a corporate body, feels called upon to unite with other colleges of pharmacy and pharmaceutical associations of the United States, in an earnest, persistent effort to effect, through Congress, at its next session, a repeal of such part of the Internal Revenue Laws as relates to a stamp tax on medicines.

Resolved, 2, That the late ruling of the Commissioner, in our opinion, affects the people more than the druggists and manufacturers, for two prominent reasons, viz.: first, the increase of costs, which fall upon them in the end; and, second, should the druggist, in order to avoid the inconvenience of stamping every small package of medicine dispensed by him, omit to have printed on his labels the proper dose to be taken, then the ignorance upon their part in the administration of medicines (without directions), ofteuer essential to the preservation of life in emergencies when no physician can be summoned immediately. We therefore confidently appeal to the public to sustain us in any effort we may make to secure the repeal of this odious law altogether, and give to them medicines free from stamp tax.

Resolved, 3, That, to this end, we will respectfully petition our representatives to use all their influence at the next session of Congress to secure the repeal of said law, which the present Commissioner mystifies the more in every attempt to define it.

Resolved, 4, That we hereby pledge the hearty co operation of the Louisville College of Pharmacy in all efforts that may be made in this direction.

At a special meeting of the New Jersey Pharmaceutical Association held at New Brunswick, on Wednesday, November 12th, the following was unanimously adopted:

Whereas, In the opinion of this Association, the Internal Revenue Laws, in regard to the stamps on medicines, necessarily cause conflicting decisions from different Commissioners and their various deputies, thereby creating infinite trouble and annoyance to retail druggists, besides frequently causing them to appear, although innocent, as criminals in the eye of the law; and

Whereas, These laws were originally passed at a time when a revenue was absolutely needed from every branch of industry, which necessity no longer exists, taxing the poor man's necessities, equally with the luxuries of the rich; and

Whereas, The Commissioner has himself acknowledged his difficulty in executing the laws, and has signified his willingness to assist in their repeal; therefore

Resolved, That in the opinion of this Association it is absolutely necessary that such portion of the Internal Revenue Law, known as Schedule C, and all acts relating thereto, be repealed.

The Maryland College of Pharmacy has adopted a petition to Congress asking for the repeal of the section in question, and we have been informed that petitions are being signed by the citizens of Baltimore, having the same end in view.

The Massachusetts College of Pharmacy has prepared a petition to Congress, in which, among others, the following strong argument in favor of the repeal of Section 13 of the Act of July 13, 1866, occurs:

We respectfully submit that a tax made oppressive on the technical wording of a label, and unjust by dating back its operations under a new decision, is so much money wrested from persons convicted of no crime, and any law that can be construed so that honest people pursuing an honorable calling cannot live under it without being subject to such pains, penalties, expense and business inconvenience, should be repealed as a simple act of justice."

The action of Commissioner Douglass has had one good effect: it has shown to many druggists and pharmacists the necessity and importance of united action, and the danger of preserving a state of isolation. An organization of the drug and pharmaceutical trade of the State of Maryland has been effected, at present with the object of consulting about the Internal Revenue law, and the latest decisions under it. With a similar object in view, the druggists of Janesville, Wisconsin, held a meeting November 14, at which Hon. Mr. Williams, member of Congress, was present, and promised to lend his aid towards a modification of the ruling. We have been informed of similar efforts being made in other States, and sincerely trust that these organizations may become permanent ones.

We venture the assertion that there is hardly a trade or profession the members of which have more cheerfully submitted to this kind of taxation by stamps than the druggists and pharmacists. Their united opposition to the new principles introduced into an old law clearly proves, therefore, how oppressive and unjust these are regarded by them.]

In connection with this subject, it is but proper to acknowledge the position towards this "new departure" taken by many of the most influential of the political papers throughout the country. They have done a great deal to convince the public of the burden the "new views" would entail upon them, and to secure the co-operation of every intelligent person throughout the country in the efforts of effecting a modification or an entire repeal of the section.

Effervescent Solution of Tartrate of Sodium.—In the July number a formula for the above preparation has been published, which appears to have been favorably received by many of the readers of the "Journal." We have been informed by a correspondent that, adding gradually the carbonate of sodium to the solution of tartaric acid, the liquid assumed the form of a thick and almost solid magma when about one-half of the carbonate had been added, in consequence of the crystallization of bitartrate of sodium. This is, with some difficulty, and by the application of a gentle heat, combined with the remaining soda. Our correspondent advises, very properly, to dissolve the carbonate first, and add to it the acid.

Pills of Sulphate of Quinia.—Mr. C. C. Patterson, of St. Clairsville, O., in a communication to the editor, suggests that these pills may be made of small size and without any gum, syrup or extract, by adding to the quinia a little tartaric acid and sufficient water. This is a modification of the plan published by Prof. Parrish in this journal in 1853, and which consists in adding aromatic sulphuric acid to the quinia and rolling the mass before it hardens, which takes place rather suddenly, and may be retarded, particularly when operating upon a larger quantity, by the addition of a very small quantity of honey or simple syrup.

The Richmond Pharmaceutical Association.—We are pleased to state that this Association has been added to the number of pharmaceutical societies already in existence in the United States. A vast field for good work is before it, and we feel sure will be well cultivated. The Association was definitely organized, November 10th, by the election of the following officers: President, Hugh Blair; Vice-Presidents, John Purcell and Dr. John R. Garnett; Recording Secretary, Jos. N. Willis; Corresponding Secretary, T. Roberts Baker; Treasurer, Henry Bodeker; Executive Committee, the President and Recording Secretary, *ex officio*, R. H. Meade, Powhatan E. Dupuy and John B. Purcell.

The Association will meet regularly the second Monday evening in every month.

The Alumni Association of the Philadelphia College of Pharmacy has resolved to place an album containing the photographs of the graduates of this College in the College library, and requests all graduates to send their card pictures to one of the officers. The Association named is already looking forward to the Commencement exercises, which are to take place on the 12th of March next. On the evening preceding the Commencement a reception will be given to the graduating class, for which occasion it is proposed to invite with the members and guests their lady friends. Mr. William C. Bakes, Class 1855, will deliver the annual address.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

An American Dictionary of the English Language. By Noah Webster, L.L.D. Thoroughly revised and greatly enlarged and improved by Chauncey A. Goodrich, D.D., late Professor of Rhetoric and Oratory, and also Professor of the Pastoral Charge, in Yale College, and Noah Porter, D D., L.L.D., President of Yale College. Springfield, Mass.: Published by G. & C. Merriam. 1873. Royal 4to, 1840 pages. With 3000 engravings. Full sheep, marbled edge. Price $12.

The value of Noah Webster's dictionary is so universally acknowledged that the work itself needs no praise from us. As a standard of orthography, orthoepy and etymology it stands unrivalled, and has received the endorsements of the best scholars, and sustained its high reputation, at home and abroad, for more than a generation. In fact, it is a monument of careful research, of completeness and general accuracy, and as such is a work of practical utility and almost indispensable necessity.

The new edition before us has been carefully prepared, and in glancing over the definitions of the technical terms employed in pharmacy and medicine we find them clear, concise and correct, with one exception: Pint is defined to mean in medicine *twelve ounces*, while in the United States it is sixteen fluidounces, or the measure of a little more than sixteen and a half ounces avoirdupois of water at the temperature of 60° F., and in Great Britain signifies, since the introduction of the British Pharmacopœia, the measure of exactly twenty ounces of distilled water.

The work is handsomely gotten up, the paper good, the types clear and the pictorial illustrations generally unexceptionable.

Pharmacopœa Germanica. The German Pharmacopœia. Translated by C. L. Lochman. With an Appendix explanatory of the French Metrical System, and Tables of Weights and Measures, &c. Philadelphia: David D. Elder & Co. 1873. 12mo, pp. 400. Price, bound in cloth, $2.50.

On page 94 of the present volume we have noticed the new German Pharmacopœia, and in the numbers from March to July we have published a number of formulas of the more important preparations contained in it. The book before us is the entire Pharmacopœia translated into English, and as such will doubtless be welcome to most of our readers. It contains, in addition to the entire text, the English name or names of every article, whether crude drug or preparation. We find the translation to be quite faithful, and the occasional addition of a word to the original only serves to render it clearer; these additions, including the English names, are designated by being enclosed in brackets. This accuracy has been secured by Mr. Lochman having submitted his translation to Mr. H. N. Wilder, who compared it once more with the official Latin text. We heartily recommend this work to all pharmacists who desire to become acquainted with the medicinal preparations used in Germany, and in this country prescribed by many physicians, or who feel interested in comparing our national Pharmacopœia with the latest one published in Europe.

Circulars of Information of the Bureau of Education. No. 4. 1873. List of Publications by Members of certain College Faculties and Learned Societies in the United States. 1867—1872. Washington: Government Printing Office. 8vo, pp. 72.

The information contained in this circular is undoubtedly possessed of considerable interest; but its meagreness is to be regretted, as well as the want of uniformity of the several authors in the insertion or exclusion of their works. In some instances only important volumes are mentioned; in others, short articles in journals and reviews are enumerated. In making this remark, the Bureau suggests that the latter would seem the preferable method, as each title explains itself.

It is proposed to hold an educational exhibition in Philadelphia in 1876, as a part of the nation's record of progress. In view of this, it is desired that any professors or instructors of colleges or universities, or any members of learned and scientific societies in the United States, whose works are not included in the above catalogue, send to the Bureau of Education full lists of their publications.

OBITUARY.

Professor Dr. F. Crace Calvert died, at the age of 54 years, on the 24th of October last. The deceased was for about twenty-five years Honorary Professor of Chemistry in the Royal Institution of Manchester, and had been elected honorary and corresponding member of many learned societies. He was indefatigable in his chemical researches, and numerous discoveries and improvements were originated or perfected by him. Many of his papers bearing on pharmacy have been republished in this journal during the last twenty years.

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